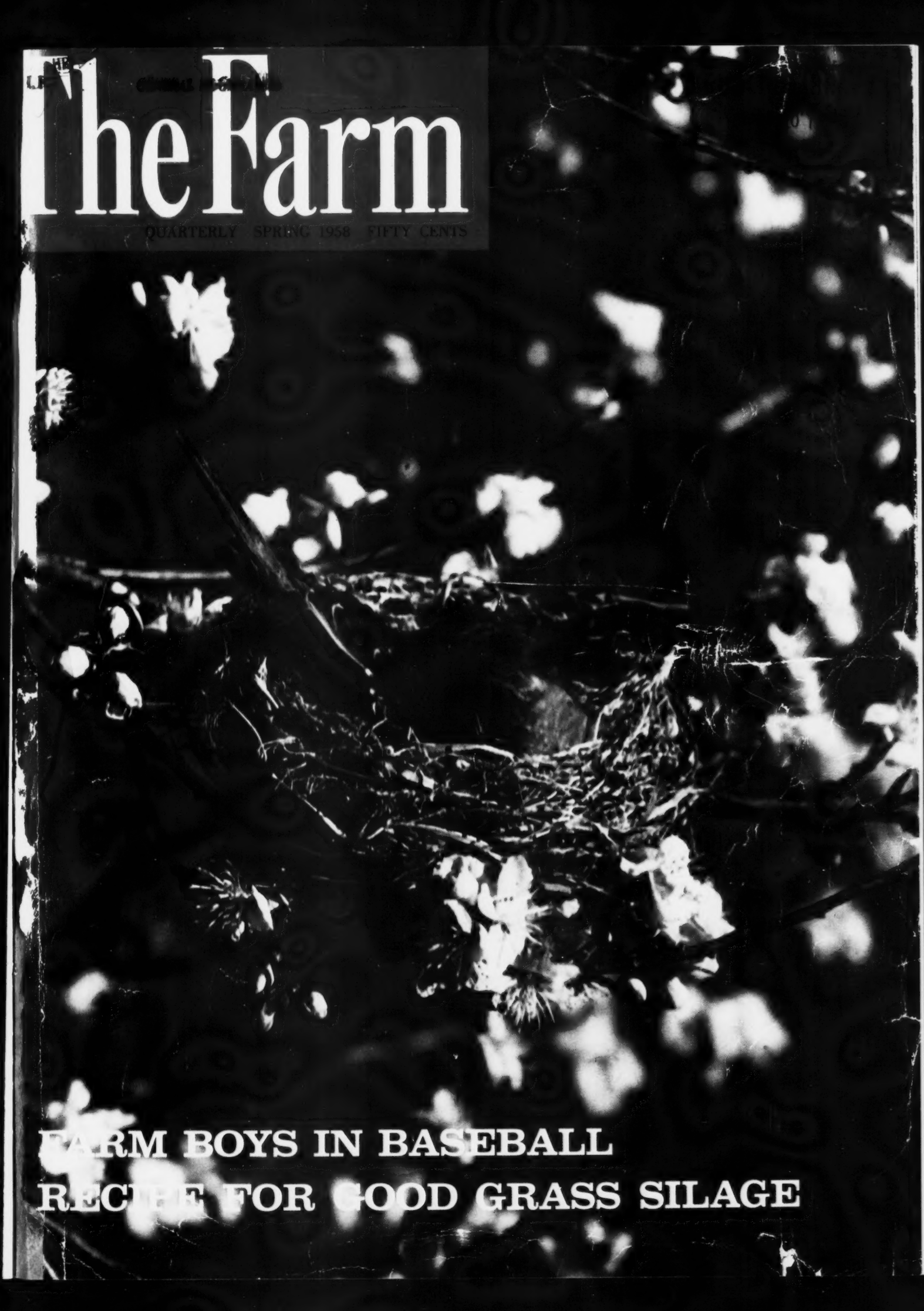
The Farm

QUARTERLY SPRING 1958 FIFTY CENTS



FARM BOYS IN BASEBALL

RECIPE FOR GOOD GRASS SILAGE

Goodyear Announces

World's newest, workin'est tractor tire—and it's angle-engineered!

dyear's all-new
ON SURE-GRIP
u the most powerful
and longest wear
money can buy!

Year after year, surveys show that more farmers prefer Goodyear tractor tires than any other make!

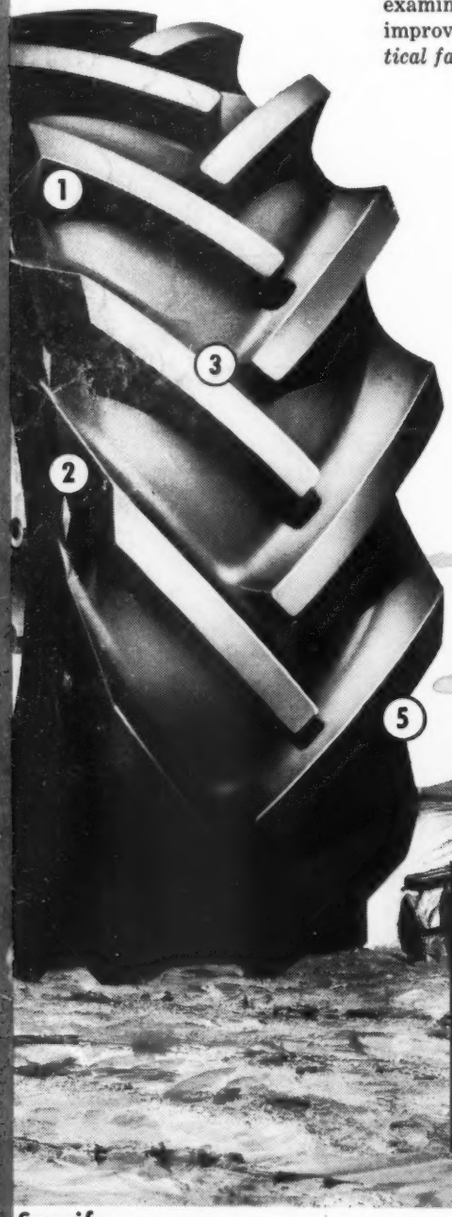
And Goodyear's continuing leadership is based on ever-seeking ways to improve even *the best.*

So Goodyear engineers studied their finest tractor tires—inside and out. Every part was examined and re-examined—and any possible improvement was rigorously tested by *practical farmers* in all types of fields.

Out of this intense, continuing trial and test, came the all-new TRACTION SURE-GRIP! It *begins* where the best of the past leaves off—it's ANGLE-ENGINEERED to give you the most powerful traction and longest wear that money can buy!

P. S.—TRACTION SURE-GRIP costs no more than tires it outdates. See it—compare it—at your helpful Goodyear dealer's.

Goodyear, Farm Tire Dept.,
Akron 16, Ohio.



Why new **Traction Sure-Grip** brings you more traction and longer wear:

1. **Lugs up to 20% deeper at the shoulder**—Angle-Engineered for bigger bites between lugs and longer-lasting traction.
2. **Double-action lugs** — Angle-Engineering gives leading edges sharper bite; *swept-back* trailing edges give better clean-out action, protect furrows and add to lug life.
3. **Longer, tapered, ruler-straight lugs**—Angle-Engineered straight-edge does more work, avoids scuffing. New tapered shape gives superior vise-like action.
4. **Broader, deeper shoulders**—Angle-Engineered for greater soil penetration and to protect against radial cracks and tough going.
5. **More muscle all over**—Angle-Engineered to give extra traction, longer wear—even on today's bigger, higher-powered tractors.

ANGLE-ENGINEERED means that the deep, rugged, ruler-straight lugs are scientifically angled to bite in, grip, PULL and come out cleaner. From bead to tread this tire is engineered to make its extra advantages last extra long.

Great New 3-Rib Front Tractor Tire!

NEW SUPER RIB has wide, sturdy center rib for better straight-line steering and control—and to eliminate soil-packing problems. Flanking ribs prevent too-deep penetration, assure superior flotation and easier rolling. New Goodyear *Rim Shield* protects bead and rim from sticks and stones. Smooth shoulders and sidewalls glide past stubble. New body with exclusive 3-T Cord is strongest ever!

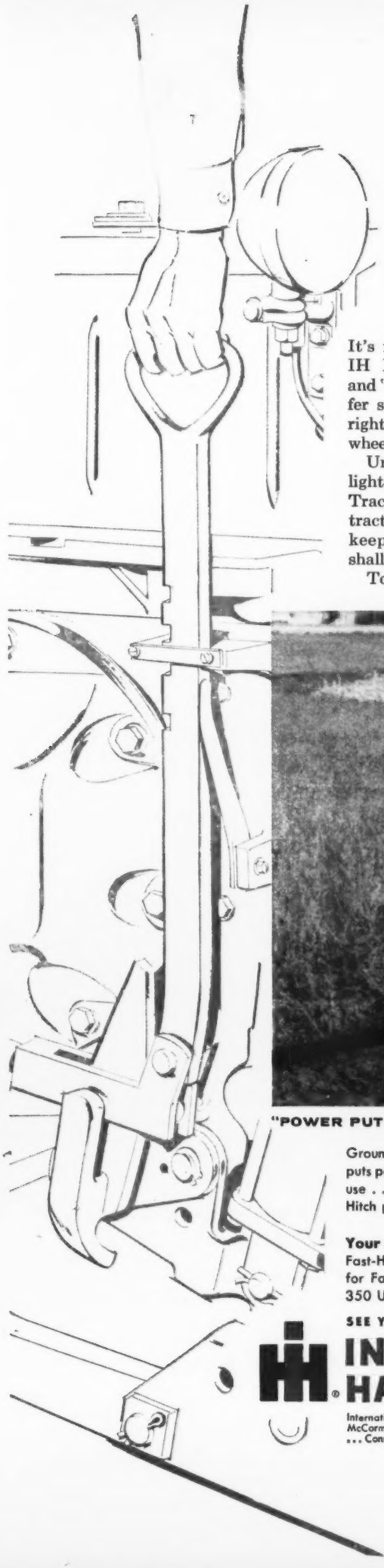
Specify

OODYEAR *New* Traction Sure-Grip

MORE FARMERS PREFER GOODYEAR TRACTOR TIRES THAN ANY OTHER KIND!

Sure-Grip—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

MAR 10 1958



now TRACTION GROWS WITH THE LOAD!

New Fast-Hitch with Traction-Control and "Pilot Guide" give you round-gaining ground grip . . . look-ahead farming!

It's new . . . different . . . unequalled—IH Fast-Hitch with Traction-Control and "Pilot Guide"! This IH weight transfer system continuously keeps just the right amount of pressure on tractor drive wheels to beat slippage.

Unlike other devices that abruptly lighten the load to match traction, IH Traction-Control Fast-Hitch gives you traction that *grows with the load!* You keep plowing full-depth when others shallow out.

To add up to a ton of "wheel weight," just pull a handy lever! Several lever settings match weight transfer to *any* field condition. "Pilot Guide" shows proper range of weight transfer and plowing depth.

Unlike hydraulic traction devices which rob engine power when needed most, the mechanical action of Traction-Control Fast-Hitch keeps every horsepower harnessed to the load. New Fast-Hitch retains Back . . . Click! . . . and Go! hitching—gives full control of cultivator with *one* hydraulic cylinder.

"POWER PUT TO BETTER USE!"

Ground-gripping traction that grows with the load puts power of new Farmall® 450 (above) to better use . . . pulling new McCormick® 4-furrow Fast-Hitch plow in hard, root-bound sod.

Your IH dealer will gladly demonstrate new IH Fast-Hitch with Traction-Control and "Pilot Guide" for Farmalls 230, 350, 450, and International® 350 Utility tractors. Call him, TODAY!

SEE YOUR

INTERNATIONAL HARVESTER DEALER

International Harvester products pay for themselves in use—McCormick Farm Equipment and Farmall Tractors . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois

New "Pilot Guide" for IH Traction-Control Fast-Hitch. Just glance at this handy device to check plowing depth, and determine whether you have the right amount of weight transfer.

Send coupon TODAY!

International Harvester Company
P. O. Box 7333, Dept. FQ-3, Chicago 80, Ill.

Tell me how new IH Fast-Hitch with Traction-Control can put power to better use on my farm. Send information on:

☐ Farmall 450 (4-5 plow) ☐ Farmall 350 (3-plow) ☐ Farmall 230 (2-plow)
☐ International 350 Utility (3-plow)

Name_____

Address_____

Post Office_____ State_____

My IH dealer is_____

"HERE'S ONE BILL I NEVER MIND PAYING!

When I pay my veterinarian, I'm investing in the health and productivity of my herd–today and in the future!"

"...the way I look at it, every penny I pay my veterinarian comes back to me, many times over, in healthier livestock and higher production. When my veterinarian examines my herd, he brings *Animal Health Engineering* to my farm . . . he's got the training and experience to detect symptoms of injury or disease while they're still easy (and inexpensive) to treat. I know I can trust him to make a careful diagnosis and to handle my animals as carefully as though they were his own.

"Sure I pay my veterinarian promptly! I consider it an investment in the future health and productivity of my herd. My veterinarian knows how to help me *prevent* disease. He advises me on proper feeding and nutrition. He knows how to treat disease with the latest methods and newest drugs. And if one of my animals requires surgery, he's the man I count on to pull her through if it's humanly possible to do so."

YOUR VETERINARIAN–
Specialist in Animal Health Engineering

Today, the breeding, feeding and growing of more productive livestock has become a complex science. Your veterinarian is the best man qualified by training, knowledge and experience to help you apply this science to your farm. His advice can help you safely meet today's demands for higher and higher production. His know-how helps you keep your animals at peak of health, productivity and profit.

When one of your animals is down, your veterinarian may decide to administer one of the new drugs which are saving millions of dollars worth of valuable livestock every year. Perhaps he will select a drug produced by Squibb.

When he does, both he and you can have complete faith in its purity, potency and safety—you can be sure there is no finer product of its kind available anywhere today. Nearly one hundred years of experience and pride stand behind the words which appear on every Squibb label: SQUIBB—A NAME YOU CAN TRUST.

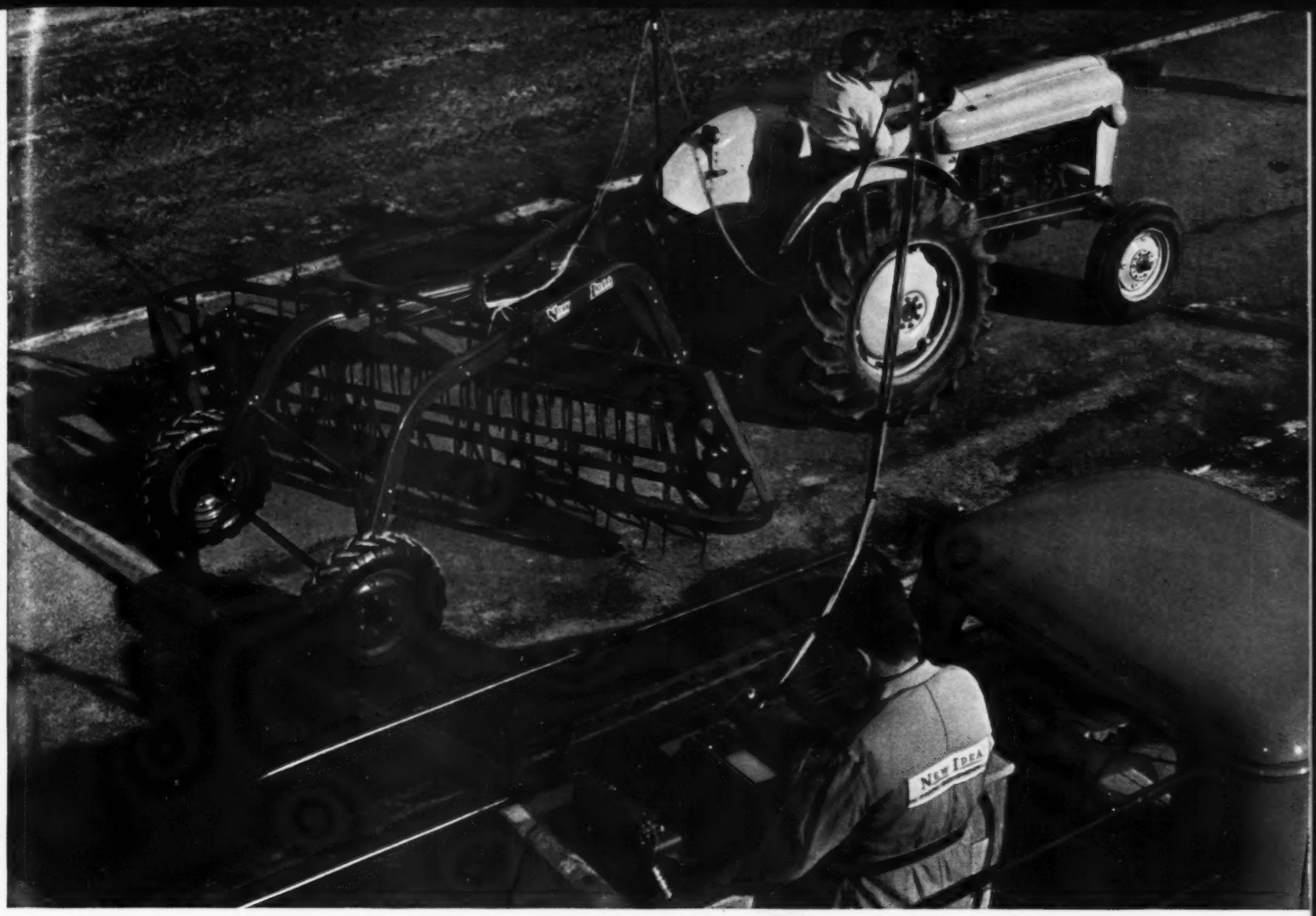
HELP YOUR VETERINARIAN BY KEEPING ACCURATE RECORDS FOR EVERY MEMBER OF YOUR HERD!

SQUIBB, *Veterinary Department*
745 Fifth Avenue, New York 22, N. Y.

SQUIBB–A NAME YOU CAN TRUST

©OLIN MATHIESON CHEMICAL CORPORATION, 1952

Farm Quarterly, Vol. Thirteen, No. One. Editorial, Circulation and Executive Offices, 22 East 12th Street, Cincinnati, Ohio. Published quarterly by F. & W. Publishing Corp. Subscription price 50c a copy; $2.00 for one year; $3.50 for two years; $5.00 for three years. Add $1.00 per year extra for rates outside the United States and Canada. Entered as second-class matter at the Post Office, Cincinnati, Ohio, under the Act of March 3, 1879. (Title Reg. U.S. Pat. Off.)



One of NEW IDEA's new torture tests to find ways to provide maximum stamina in the new No. 400 rake. Strain gage recording equipment mounted in truck accompanies rake. 250 round trips over this track subject the rake structure to the stresses and strains encountered in about 2500 acres of heavy raking.

Look at the NEW IDEA New Pull-Type Parallel Bar Rake before you buy

Makes finest hay—fluffy windrows—minimum leaf shattering —cleanest raking—tested on torture track and on farms

To help you make better quality hay, the NEW IDEA engineering department has designed a truly advanced new 8-foot pull-type parallel bar rake that fits all tractors.

Quality hay in half the time. This brand new, 5-bar, pull-type, parallel bar rake handles hay gently, makes uniform, fluffy windrows. Basket tilts to vary fluffiness of windrow. Can cut raking time in half. Makes unbroken windrows on corners so that balers and forage harvesters can operate with uninterrupted feed.

Positive ground drive, with constant ratio between reel speed and forward travel, gives minimum leaf shattering plus unusually clean raking.

Many advanced features. Exclusive rubber bushings at each end of stabilizer provide quieter operation and reduce wear. Widefooted, screw type jack folds out of way, gives ample clearance for hay. Because of buffer springs, basket rides easily over rough ground.

New convenience. Exclusive single crank (standard equipment), operated from tractor seat, controls transport lift and operating height. Basket is levelled by a simple adjustment; a crank attachment, driver operated, is available as an extra. Sealed, grease filled gear box needs lubrication once a year. Clutch is operated from tractor seat.

Torture proved, farm proved. This new rake has been proved and improved on the NEW IDEA torture track, to provide longest life. And it has been on-farm tested to prove that it gives finest performance in producing quality hay.

Get all the facts on this advanced new pull-type parallel bar rake from NEW IDEA. Ask your dealer, where it will soon be on display; or write for new literature.

Look at New Idea before you buy

NEW IDEA FARM EQUIPMENT COMPANY, DIVISION AVCO DISTRIBUTING CORP.

Dept. 482, Coldwater, Ohio

Please send free literature checked:

- ☐ Pull type parallel bar rake
- ☐ Mounted parallel bar rake
- ☐ Pull type rakes and tedders
- ☐ Booklet "Tried and New Ideas for Making Hay"

Name_____

Address_____

Town_____ State_____

HERE'S OLIVER

See the Power!

Power, power, and *more* power—that's the story of these all-new Oliver tractors. Not alone the *look* of power, but power everywhere you look! New engine power up forward...new traction power behind ...new booster power in every working speed. Power steering, power-spaced wheels...

But look over the pictures and see if you don't agree: Oliver is your buy for '58—*for mighty powerful reasons!*

The Oliver Corporation
400 West Madison Street, Chicago 6, Illinois

The New Oliver 880

POWER FOR '58

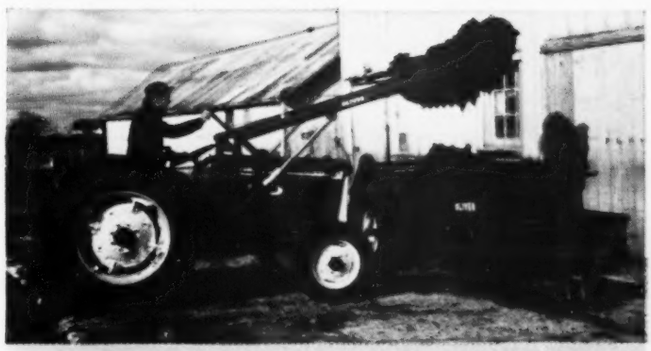
Feel the Power!

NEW 12 FORWARD SPEEDS!

This new POWER-BOOSTER DRIVE gives you two speeds in every gear—actually 12 forward speeds in all. No stopping, no clutching when the going gets tough—just flick the lever and you're geared down for emergency power. Available on the 770 and 880.

NEW POWER-TRACTION HITCH!

You'll feel its powerful "bear-down" action when your tools hit heavy soil—you push right through without slippage. Spring latches make for fast, snap-on hitching—3-point equipment of all types, all makes. Available on the 770 and 880.



POWER STEERING, POWERJUSTER WHEELS

Power steering available on all models (especially desirable with front-end equipment.) *Powerjuster* (optional on all models) sets wheel tread to match the job. *Safety Switch* (standard) prevents accidental starting.

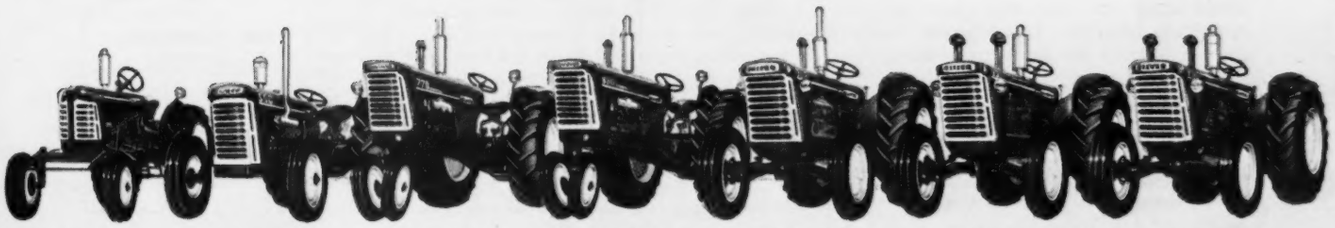
THE BIG POWER, IN THREE NEW MODELS

See the 5-6 plow 950, the 6-plow 990 GM, and—mightiest of all—the 995 *Lugmatic* (with GM diesel). Lugmatic holds power steady even when the load goes up. Power stays full-on! Lugmatic can deliver up to 35% more lugging power.

OLIVER

"FINEST IN FARM MACHINERY"

Also Manufacturer of the Famous Oliver Outboard Motors



The Super 44 2 plow | The new 550 2-3 plow | The new 770 3-4 plow | The new 880 4-5 plow | The new 950 5-6 plow | The new 990 GM full 6-plow | The new 995 GM Lugmatic

Ask About The OLIVER Pay As You Produce Purchase Plan

For Faster, Lower-Cost Forage Harvests

..Go JOHN DEERE

NEVER before have you had a better opportunity to cash in on forage feeding! New John Deere Equipment not only cuts costs but makes work faster and easier.

NEW 15 Rotary Chopper Features Knife-Equipped Fan

Here's a *low-cost* forage harvester—a simple, rugged, and dependable performer—the new 15 Rotary Chopper shown above. Its curved, free-swinging knives cut, chop, and lift standing hay crops and deliver material through an auger to a knife-equipped fan. Material is chopped just right for direct feeding or for ensiling in upright and trench silos. It's versatile—shreds and spreads stalks and brush . . . makes bedding . . . handles many other jobs.

NEW Self-Unloading Forage Box Attachment Makes PTO Spreader a Double-Duty Performer

Here's a time-saving, back-saving forage wagon that costs less—the new Forage Box Attachment which makes the John Deere Model "N" PTO Manure Spreader a double-duty performer shown above. With this outfit you can deliver chopped feeds from the side into feed bunks . . . from the rear into hoppers. It's easy-on, easy-off—takes two men less than an hour to attach.

NEW Self-Unloading 110 Chuck Wagon Delivers from Side and Rear

The new John Deere 110 Chuck Wagon Mixer-Feeder (see inset) does everything but spoon-feed cattle. It delivers chopped forage from side and rear at five unloading speeds . . . it mixes supplements into material as it's fed. It mounts on wagon gear or truck bed to fit your operations. It's a money-maker, a time- and back-saver.

See your John Deere dealer. Mail coupon today for free literature.

JOHN DEERE

"WHEREVER CROPS GROW, THERE'S A GROWING DEMAND FOR JOHN DEERE FARM EQUIPMENT"

SEND FOR FREE LITERATURE

JOHN DEERE • MOLINE, ILLINOIS • DEPT. W54

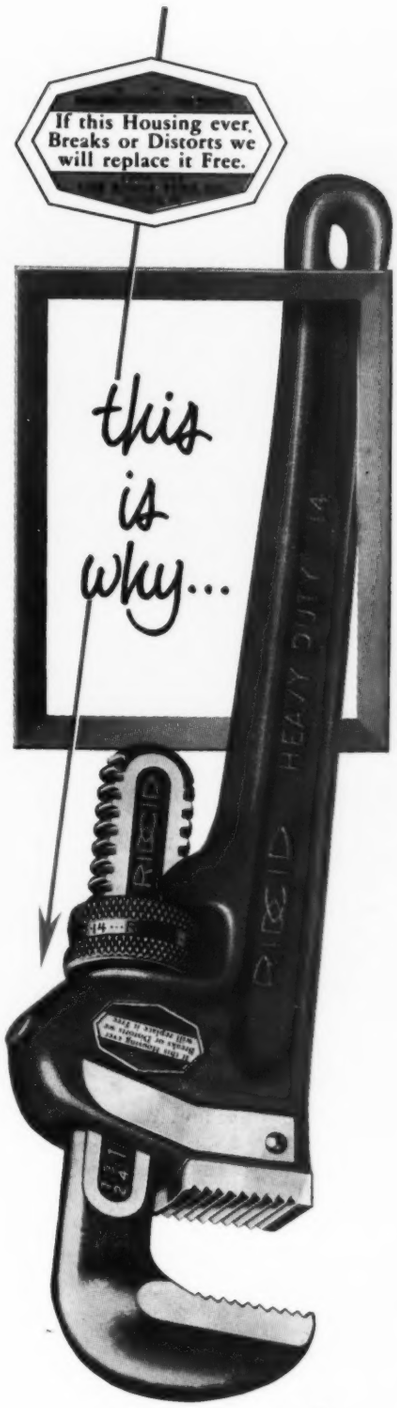
Please send me free literature on the John Deere Forage Equipment checked below:

☐ 15 Rotary Chopper ☐ 110 Chuck Wagon Mixer-Feeder
☐ Forage Box Attachment for Model "N" PTO Spreader

*Name*_____ ☐ *Student*

*R.R.*_____ *Box*_____

*Town*_____ *State*_____



. . . the world's most popular pipe wrench is the best one in your farm tool kit. At your nearest Hardware Store.

The Farm QUARTERLY

Spring, 1958, Volume 13, No. 1

CONTENTS

LIVESTOCK
Feeding for Early Breeding..... 44
Recipe for Good Grass Silage..... 76

BUILDINGS AND EQUIPMENT
Drying—In Storage or For Storage..... 60

MANAGEMENT
The Other Man in the Bargain..... 46
"Sow it All"..... 54

CROPS
Sorgo King..... 52
Witchweed Gains a Beachhead..... 70
Corn, Cotton & Chemicals..... 80

SOIL AND CULTIVATION
Irrigation—By Trickle or Sprinkle..... 66

FEATURES
Florida Transplants..... 40
Dry Land Spongers..... 50
The Family Cow..... 58
The Last Farmer..... 64
Farm Boys in Baseball..... 72

DEPARTMENTS
Letters..... 14
Over the Back Fence..... 21
The Dairy Barn..... 24
Poultry Yard..... 26
Farm Books..... 32
The Farm's Pictures..... 96
Index to Advertisers.....167

THE FARM QUARTERLY
22 East Twelfth Street, Cincinnati 10, Ohio

R. J. McGinnis, *Editor*
Fred Knoop, *Executive Editor*
Grant Cannon, *Managing Editor*
Chas. R. Koch, *Associate Editor*
Chester Charles, *Research Editor*
Fred Eichenberger, *Art Editor*
Betty K. Green, *Editorial Secretary*
James Rosenthal, *Production Manager*
Jack McCain, *Circulation Manager*
Harry Dunnohew, *Advertising Manager*
Carol Vedder, *Advertising Contract Manager*
Aron M. Mathieu, *Business Manager*

Farm Quarterly is published Spring, Summer, Autumn and Winter. Price 50c a copy; $2.00 a year, $3.50 two years, $5.00 three years. Add $1 per year for countries outside USA and Canada. Send check to Farm Quarterly, 22 East 12th Street, Cincinnati 10, Ohio.

Summer issue on sale June 6 at all Class A newsstands.

"Faster harvesting with greater profits

SINCE WE SWITCHED TO AN EATON 2-SPEED AXLE!"

—says farmer LAWRENCE A. RHODA, Schoolcraft, Mich.

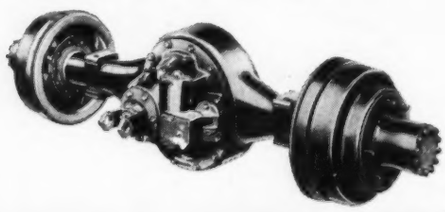
"Now that we have an Eaton 2-Speed Axle, we are saving both time and money," says Mr. Rhoda. "Whatever load we're pulling through our 540 acres — corn, wheat, hay, ensilage — our Eaton-equipped truck prevents bog-downs and delays. Over the road, hauling crops or cattle, trips are faster — and we go farther on every gallon of gas.

"Before we had an Eaton 2-Speed, a heavily loaded truck would often get stuck in a soft spot, and we would need a tractor to pull it out. Now, Eaton's low-gear range inches our Ford truck along. The engine doesn't stall or overheat. Crop harvesting moves along smoothly, and we're not troubled by breakdowns or getting behind schedule.

"On the highway, we take hills, or stop and start at traffic lights without jerking the truck and upsetting our livestock. On straight stretches, Eaton's high-gear range assures top legal speeds — engine RPM is less, and gasoline consumption is low. We are more than satisfied with our Eaton 2-Speed Axle."

Find out how an Eaton 2-Speed saves time, trouble and dollars. Ask your truck dealer for a demonstration.

◀ **"HIGHWAY TRAVEL** is steadier, costs us less in time and money, thanks to our Eaton-equipped Ford truck," adds Mr. Rhoda. "Hauling a full load of cattle or hogs, there's less danger of injury to the livestock, because the Eaton 2-Speed gives the driver full control over the truck. What's more, maintenance expense and engine wear are down low."



FORD DEALER ▶

John W. Dir, of Schoolcraft, has been selling Eaton-equipped trucks for over ten years. "In all that time," says Mr. Dir, "we've never heard a complaint about an Eaton 2-Speed Axle. I use an Eaton-equipped Ford myself on my farm. Through actual experience I know that the Eaton 2-Speed will give farmers top economy and field and highway maneuverability."

EATON 2-SPEED AXLES

MORE THAN 2 MILLION EATON AXLES IN TRUCKS TODAY

EATON MANUFACTURING COMPANY, CLEVELAND, OHIO

WAYNE GIVES 'EM A

HEAD START!

for

EARLY MARKETING

Headstart Your Pigs on Wayne Tail Curlers. New Syncro-Zymic nutrient action in all Wayne Pig Feeds keeps pigs growing and gaining fast.

HYGROMYCIN

...now in Wayne Tail Curler to control worms.. plus ARSANILIC ACID with Antibiotic for fast starts and top feed conversion.

for

EARLY MILK PRODUCTION

Headstart Your Calves on Wayne Calfnip Milk Replacer. Leading dairymen say, "Calfnip costs less to feed than milk and helps reduce scours." Follow with antibiotic-fortified Wayne Calf Starter for faster growth on less feed. Or, get economical growth on Wayne Calf Supplement and grain.

for

EARLY EGG PRODUCTION

Headstart Your Chicks with only 3 lbs. of Wayne Chick Starter, then switch to Wayne Growing Mash or Wayne Concentrates and grain. Or, for single feed convenience, go all the way with Wayne Starter and Grower. All have Syncro-Zymic nutrient action for faster starts on less feed!

Get New Headstart Feeding Information From Your Wayne Feed Dealer Today!

WAYNE FEEDS

ALLIED MILLS, INC. Builders of Tomorrow's Feeds...TODAY!

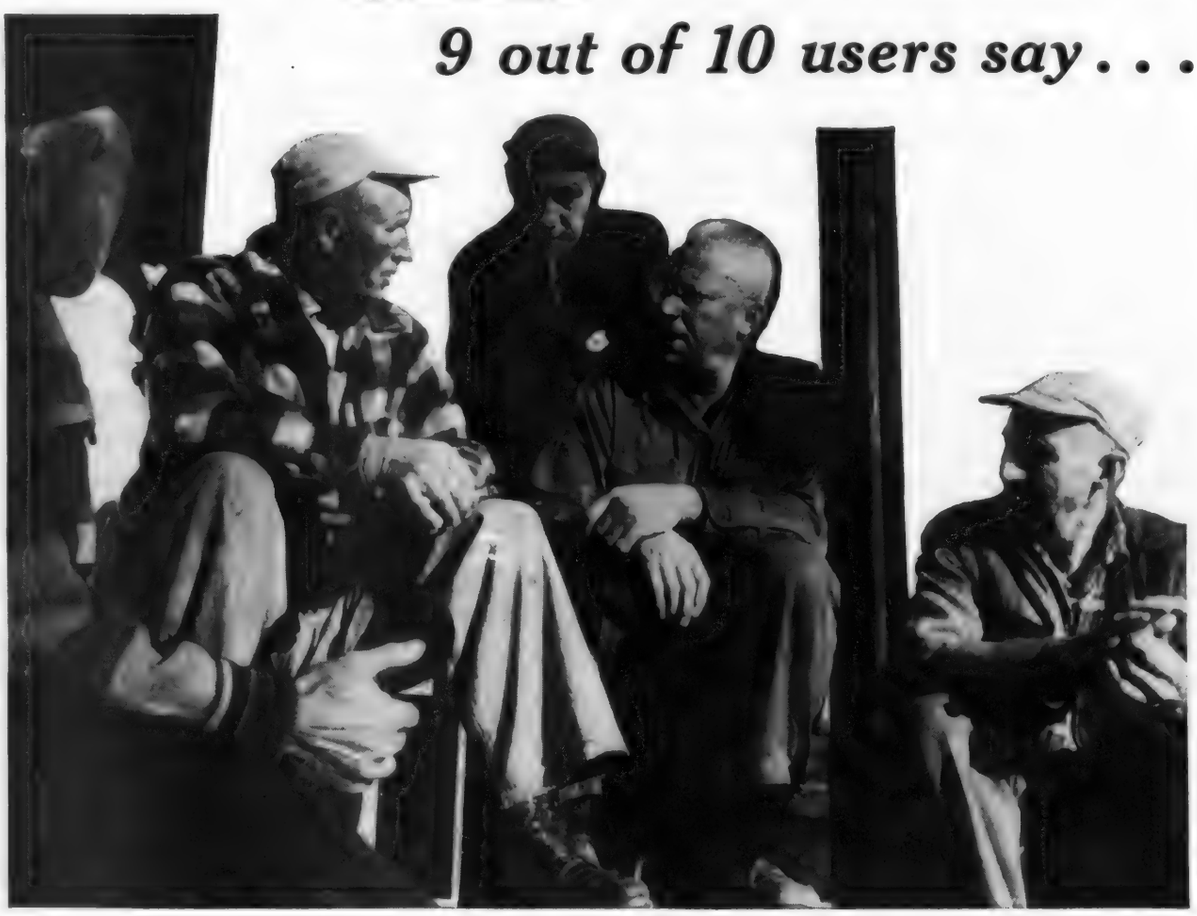
Executive Offices: Chicago 4, Illinois • Service Offices: Fort Wayne 1, Indiana

9488

B.F.Goodrich

"B.F.Goodrich Power-Grip tires pull better than any tires I've ever used, particularly over slick cover crops," says Lawrence E. Flood, who farms 400 acres near Council Bluffs, Iowa. He never needs chains in mud because of the bigger, wider Power-Grip tread.

9 out of 10 users say . . .



"Power-Grip tread is all I could expect in traction, toughness and extra wear," writes O. P. Henry, Maryville, Tenn. He says the higher cleats dig in for more drawbar-pull—the specially reinforced tread wears longer even in the flint gravel soil of his 400-acre farm.

"Special Service tires pull better because they stay clean in my fields," reports Ray Johnson, who raises rice on his 1,374-acre farm near Stuttgart, Ark. B.F.Goodrich Special Service tires have slanting cleats that will not scoop up mud, a wider tread for maximum flotation in water-covered rice fields.

"B.F.Goodrich farm tires are the best I've ever used!"

(Based on an actual survey of farmers all over the country)

DON'T take our word for it—take the words of farmers just like yourself who have used B.F.Goodrich farm tires. 9 out of 10 of them say B.F.Goodrich farm tires are the best they've ever used! Why not find out firsthand what they're talking about? See your B.F.Goodrich dealer and try a set of Power-Grip, Super Hi-Cleat or Special Service tires on your tractor today. *B.F.Goodrich Tire Company, A Division of The B.F.Goodrich Company, Akron 18, Ohio.*

"I prefer Power-Grip tires because in plowing bottom land where front wheels often load up with mud, I still get plenty of traction." So says Gordon Keleher, Sioux Falls, S. D.

"Super Hi-Cleat tires run clean, whether in mud, tough alfalfa sod or plain old gumbo," Glenn Riffe of Windfall, Ind., reports. B.F.Goodrich Super Hi-Cleat tires sell at low prices, yet have the same tread design that came on new tractors for years.

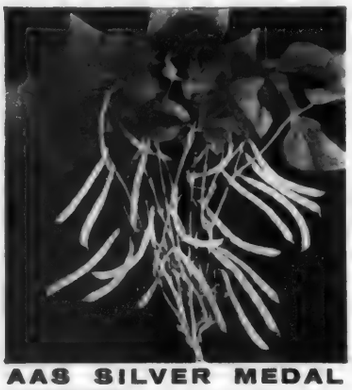
"Up to 60% greater traction than other makes," is what Lester Nittler reports B.F.Goodrich Power-Grip tires give him. Here Power-Grip tires easily pull a 3,500-lb. chisel through hard pan on Nittler's Rio Grande Valley farm near Elsa, Texas.

Your B.F.Goodrich dealer is listed under Tires in the Yellow Pages of your phone book

NEBRASKA sorghum grower Walter Pollman, who has grown sorghums for 15 years, finds Northrup King sorghum hybrids give him the biggest yields—at least 10 bushels more per acre.

GEORGIA Northrup King Fieldmen check performance of new NK37 giant Bermudagrass . . . a remarkable new *high-yielding, seed-producing* variety for the South.

NEW YORK dairyman Lloyd Smith calls Du Puits alfalfa (introduced by Northrup King), "The leafiest, finest-textured, fastest-growing short-rotation alfalfa I've tried."



AAS SILVER MEDAL WINNER, Pearlgreen Bean, was developed and introduced by Northrup King. The only vegetable to win a Silver Medal Award for 1958.

CALIFORNIA farmer E. V. Sormano grows 919 Brand Alfalfa for hay—finds it the ideal blend for short-rotation use on his land.

IOWA corn grower Jules Lage harvests a 150-bushel-per-acre crop of Kingscrost hybrid corn. "Kingscrost is the best hybrid you can get," says Lage, enthusiastically.

Good farmers from coast to coast...

get bigger yields, better crops, with products of Northrup King research—products like Kingscrost Hybrid Corn, Northrup King Sorghum Hybrids, Pearlgreen beans, NK37 Bermudagrass, 919 Brand, 10-19 Brand, Terra Verde Brand and Du Puits Alfalfas.

Shown above are typical examples of the way outstanding farmers the nation over use these outstanding Northrup King seed products to help them get *more* from every acre of their land. This seed research, carried on by Northrup King at locations from Florida to Oregon and from Arizona to Minnesota, is an investment in better farm crops today *and* tomorrow.

Dedicated to helping you get more from every acre

Northrup, King & Co.

MINNEAPOLIS 13, MINN.
FRESNO, CALIF. • BOISE, IDAHO
AND 38 BRANCHES

NK®

Protected watershed near Weatherford, Texas, saved millions in farms, crops, highways, homes, businesses, soil — and perhaps even human life.

Protected watersheds weathered the floods with flying colors

Ask any Texan in the East Fork Laterals Watershed project south of Dallas what he thinks about watershed protection. Chances are he'll point to a bridge still sound as ever, despite the violent floods of last April and May – or a flat piece of alfalfa that is free from flood damage – or a reservoir with little evidence of silting – and tell you that *without* watershed protection, all these *and more* would be seriously damaged. Yet East Fork Laterals weathered 11.91″ of rain in seven days – 5″ of which fell during one 6-hour storm – and came through with minimum flood and erosion damage.

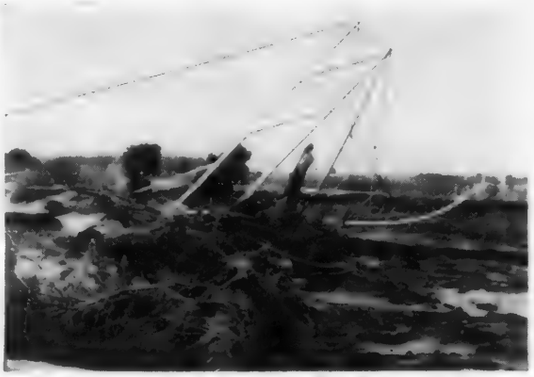
Meanwhile, just a couple of counties away, Lampasas – without a watershed protection program – still fights off the crippling effect of the raging Sulphur Creek. Here 5 people drowned, thousands of acres were flooded, 38 homes destroyed – total damage conservatively estimated at $3,700,000. Survey teams report that adequate watershed protection could have held damage to $50,000 or even less.

The story is the same wherever the floods came: when watershed control work was far enough along to be effective, damage was held to a minimum. For example, flood-spawning cloudbursts poured down on the Honey Creek Watershed project near Dallas – on the Cow Bayou Pilot Watershed south of Waco – completed portions of the upper Washita Watershed near Cheyenne, Oklahoma – but they stood the test.

Today, thoroughly convinced of the value of watershed protection, farmers, businessmen and civic-minded Texans are forming watershed districts that will tame the once-in-a-lifetime floods – as well as the smaller floods that occur almost every year.

What about *your* community? Does it have a flood control problem? Is irreplaceable topsoil being lost to a dangerous degree, stripping cropland of fertility, causing serious erosion and cutting gullies?

You can do something about it now, on your farm, by building ponds, dams, terraces, grassed waterways with a CAT Farm Tractor. Join your neighbors in organizing a watershed district in your community. Your S.C.S. director – farm advisors – community leaders – and your Caterpillar Dealer will help you. Write for free copies of the new booklet "Stop your floods before they start . . ." Address: Dept. FQ38, Caterpillar Tractor Co., Peoria, Ill., U.S.A.



Unprotected watersheds in Oklahoma flooded 1,500,000 acres; 35 million dollars property loss.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

FACT OF THE MONTH: *The average annual cost of flood damage in U.S. is $1,200,000,000.*

Caterpillar Tractor Co., Peoria, Illinois

INTERNATIONAL HARVESTER—one of the leading engine manufacturers using Perfect Circle piston rings for both original equipment and replacement service.

PREFERRED by more engine manufacturers for original equipment and replacement service than any other piston ring!

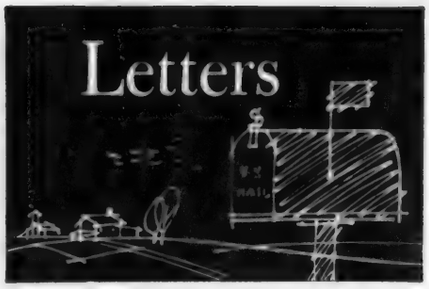
Behind the world-wide preference for Perfect Circle is a history of more than half a century of PC engineering leadership—and more. There's a history, too, of unceasing creative research...a constant search for the new and the better... matchless manufacturing skills... and scores of contributions to the forward march of the automotive industry.

You benefit from Perfect Circle achievements every time you buy a car, truck or tractor equipped with PC piston rings. And you're sure to benefit, too, when you ask for Perfect Circles when it's time to overhaul *your* farm engines. PC 2-in-1 Chrome piston rings more than *double* the life of cylinders, pistons and rings, mean more hours between overhauls, more field time, less down time! Perfect Circle Corporation, Hagerstown, Indiana; The Perfect Circle Co., Ltd., 888 Don Mills Road, Don Mills, Ont.

Since 1903...partner in progress to the automotive industry

PERFECT CIRCLE

PISTON RINGS



What this Country Needs . . .

Sirs:

The Manufacturing companies that supply Agriculture fail to recognize a real farm need. In your articles on irrigation you have said, time and again, not to buy an irrigation layout piecemeal but to insist on buying a completely engineered layout—one that the dealer will stand behind.

How about the far more important job of engineering farm buildings and equipment for economical movement of farm products?

Here is an example. I recognized that one of the big expenses in operating my farm was moving grain. I decided to do something about it. I wrote to every advertiser in your magazine who manufactured buildings or grain moving equipment and asked of them if they would engineer a complete layout for me. I got a lot of fine advertising literature back on specific pieces of equipment but only one company offered to draw up a complete plan for the farm. These are the best companies in the field.

To me, this is a shocking state of affairs. I contend that one of the most needed things on the farm today is a scientifically engineered system for moving bulk.

Charles Norton

Franklin, Indiana

Integration and the Producer

Sirs:

I hope you will consider your article on Vertical Integration as the first of a series. This is a tremendous subject. I believe it is destined to gain in importance in the next few years.

This particular article is really the success story of Jesse Jewell. There is not the slightest doubt that Mr. Jewell has made an outstanding success of his enterprise and has introduced a whole new concept into the field of agriculture.

My own views are admittedly biased on the side of the producer. I feel that he has not been given fair consideration in any of these integration schemes and he is too disorganized to fight effectively for his rights.

I thought we had gotten away from the homework, pin-money, exploitation of women and children type of competition. I thought this kind of thing had gone down the drain along with slave- and prison-labor.

Mr. Jewell has it in his power to assert leadership in another direction. He should sit down and study his contract in the light of the facts as they are today. With all the figures available to him he should be able to develop a fair formula that would give each of his producers a good return for his investment and labor. He could then call a meeting of his competitors and try to get them to go along with him. I believe most of them would, for the present unrest amongst producers is not healthy. In spite of the extra cost this would create, the price of chicken to the consumer would still be cheap as compared to other meats. With beef destined to double in price in the next few years, the broiler people surely have a tremendous opportunity ahead of them. I believe Mr. Jewell could lead the way toward making it a good business for all concerned.

Joseph H. Fletcher

Wentworth, N. H.

NEW "TRANQUILIZING" DRUG BOOSTS GAINS, SAVES FEED!

Since their introduction in 1954, tranquilizing drugs have helped at least 20 million Americans calm down jumpy nerves, pacify butterfly stomachs and obtain "peace of mind".

Now, feed industry scientists have found that tiny amounts of a newly discovered member of the tranquilizing drug family will speed up livestock gains!

Feeding trials at the Pfizer Agricultural Research and Development Center show that just a teaspoonful of this new drug called Tran-Q is enough to boost gains of 1,000 steers for a 100-day feeding period. Animals also needed less feed to put on the extra gains.

Improvements in gain and feed efficiency are in addition to those obtained with other known growth boosters such as Terramycin and stilbestrol.

For example:

In an 84-day feeding trial, steers getting a regular feedlot ration plus Terramycin made 11% greater gains and used 13% less feed than animals getting the regular ration alone.

When Tran-Q was added to the Terramycin-fortified ration, there was a FURTHER 12% gain and a 7% improvement in feed efficiency!

In work with lambs, Tran-Q improved rate of gain as much as 28% and feed efficiency up to 20%.

Feeds containing Tran-Q or Terra Tran-Q, a combination of Terramycin and Tran-Q, will soon be available from many feed companies—another of the industry's many services to help you produce more meat on less feed.

What next from Pfizer—and your feed man? Right now they're experimenting with higher levels of Tran-Q and other tranquilizing drugs to calm down excitable and ornery animals. This will help you prevent weight losses and disease at times of stress.

Science Comes to the Farm in a Feed Bag

Pfizer

TRAN-Q® TRADE MARK REG., U. S. PAT. OFF.
TERRA TRAN-Q® TRADE MARK REG., U. S. PAT. OFF. TERRAMYCIN® BRAND OF OXYTETRACYCLINE

Pfizer Agricultural Research and Development Department

modern farming's NEW pace-setter
MASSEY FERGUSON -65-
Bruce Bomberger

WHAT'S ALL THE FUSS ABOUT?

A really big tractor with the Ferguson System!

A remarkable new tractor had just been delivered to Tom Jordan's farm, and the news brought out family, friends and neighbors. It was the all-new Massey-Ferguson 65, the tractor all the folks had been waiting to see. What makes it so remarkable is that it's the first big, powerful, *four*-plow tractor ever made with the world-famous Ferguson Hydraulic System. *That's* what brought the folks for a look-see! They swarmed over the sleek new MF65 . . . crawled under it . . . looked it over from every angle. Then Tom hitched on his new 4-bottom plow and proudly took the MF65 out into the fields to show what his new tractor could do. See for yourself on the next page!

This message from Massey-Harris-Ferguson continues on next page.

New tractor makes big M-F equipment "self-propelled"

For Tom Jordan and thousands of other progressive farmers, the new Massey-Ferguson 65 is big and welcome news.

Here at last is a tractor that allows Tom to work a 4-bottom plow and other correspondingly big field equipment under normal conditions and with all the ease of handling and maneuverability formerly possible only with a *lighter* tractor and *smaller* field equipment.

The reason is that the MF65 is the first tractor of its size with the world-famous built-in Ferguson Hydraulic System. A 4-bottom plow and other large Massey-Ferguson field equipment literally become *part* of the MF65, making the equipment virtually self-propelled. It not only lifts and lowers implements for sharp turn-arounds and easy transport, it also provides far more precise *draft control* of soil-engaging implements than is possible with any other tractor.

HERE'S THE "CONTROL CENTER" of the MF65's Ferguson System . . . the world's first successful hydraulic control system and still years ahead of all its imitators. With this single, compact quadrant, you can raise and lower implements, select draft and maintain precise working depth, adjust the hydraulic system's speed of response, and hold implements at any position desired.

WHEELS SPIN AT HIDDEN OBSTRUCTIONS because of the exclusive Ferguson System Overload Release in Tom's new MF65. It is built right into the tractor, and automatically protects both tractor *and* implements. When the plow strikes an obstruction, the Ferguson System automatically goes into Overload Release. The MF65's rear wheels immediately lose traction and spin. The driver simply disengages the clutch, then backs the tractor slightly, lifts implement, and proceeds forward to clear obstruction. No damage to tractor or implement; no danger to the driver; no need for him even to leave the tractor seat . . . and no loss of time!

Tom's next buy...

THE HAYMAKING EQUIPMENT WITH THE BIG PAY-OFF

Tom's seen it; he *knows* the new Massey-Ferguson grassland equipment is for him. Take the No. 3 Baler, for instance... shown at the left. It gets to work in the field faster... bales an extra load a day because you don't have to lubricate it all season long! It's real high-speed baling with a feather touch...its exclusive Leaf-Guard design saves more of the protein-rich part of the crop that puts the pay-off pounds on livestock. The Massey Ferguson No. 3 Baler is low for all-around visibility; compact (only 7 ft. 10 in. wide) to clear narrow gates and shed doors easily. Engine and PTO models.

This is the famous MF Dyna-Balance Mower . . . a new concept in mower design, farmer tested for 5 years. There's no troublesome pitman with its noisy, nerve-racking vibration. Instead, the exclusive Dyna-Balance Drive permits a profit-boosting, higher capacity operation, season after season, with less maintenance cost than was possible before.

The MF Side-Delivery Rake moves hay 50% *less* distance . . . saves *more* of the protein-rich leaves. Mounts right *on* a Ferguson System tractor to give you finger-tip control of the rake at all times! Pull-type model, too.

Now it's **MASSEY FERGUSON**

MASSEY-HARRIS-FERGUSON, INC., RACINE, WISCONSIN

World's most famous combines and the only tractors with the Ferguson System

Hayliner 68 with Flow-Action—now available in twine- and wire-tie models

Here's the BALE-POWER to make QUALITY hay fast!

New Holland's Hayliner 68 with exclusive Flow-Action bales fast, bales gently, saves protein-rich leaves

Your first baling run with the Hayliner 68 tells the story—here's the bale power you need for fast, efficient haymaking! And here are the quality bales you want, too—firm, square, and full of protein-rich leaves.

The secret is Flow-Action, New Holland's exclusive feeding system that's been proved by farmers everywhere. Flow-Action *floats* the hay from pick-up to chamber . . . preserves more precious leaves. And Flow-Action *measures* each charge, too, so there's less chance of overloading.

With the Hayliner 68, you'll put up the kind of quality hay that means more milk production and meat gain, with less feed supplements. And you'll do it for years to come.

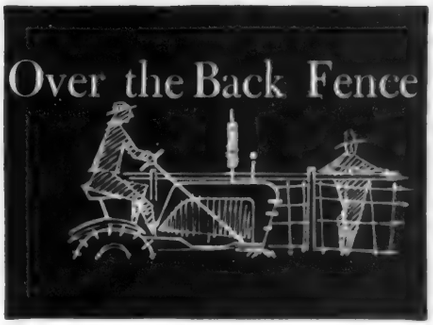
Ask your New Holland dealer for a demonstration today! New Holland Machine Company Division of Sperry Rand Corporation, New Holland, Pennsylvania.

***FLOW-ACTION* is the secret!**

Strong, but light aluminum tines move hay gently into bale chamber. In heavy windrows, telescoping, spring-loaded tine bar prevents overloading, jamming, or clogging. There's no auger, no wadboard. Just a smooth, even flow of hay. Fewer moving parts mean easier maintenance, years of trouble-free service!

NEW HOLLAND MACHINE COMPANY *"First in Grassland Farming"*

See offer in coupon on opposite page!



Hark, the Spring! The seed catalogs are more lovely than usual this spring. We could see, even in early January with the first arrival, that this is going to be a good year for people who plant seeds. Predictions for fine flavor, giant size, and bountiful yield were made without reservation or modesty. And you may quote us, every word is true. The only item not listed, and a very necessary one it is, too, is a green thumb.

Low Cow on the Totem Pole We've got a pretty exalted notion here in U.S.A. that we do everything a little better and bigger than anyone else. Take cows, for example. U.S. cows rank way down near the bottom of the totem pole in annual production. Here is the ranking, recently reported by the F.A.O.: (1) Dutch, 8,602 lbs. (2) Belgian, 8,272 lbs. (3) Denmark, 7,524. (4) Luxemburg, 7,150. (5) Switzerland, 6,930. (6) U.S., 5,808. Even the cows of Iceland do as well as U.S. cows, and Sweden, Great Britain, and Germany all out-produce the U.S.

One Ewe One Year Eleven Lambs Eleven lambs from one mother have been bred in one season at Britain's Agricultural Research Farm at Cambridge, England. This super family, which has made livestock history, is part of the experiments begun some years ago at the farm by Dr. John Hammond to devise a method by which breeders could quickly improve their stock.

In this case a prize Suffolk sheep was injected with sex hormones which caused her to set free a larger number of reproduction egg cells than is normal in sheep. She was then mated with a prize ram. The egg cells were removed from her body and transplanted into ewes of poorer breeding quality. These ewes served as incubators for the fertilized ovae, and eventually they gave birth to ten fine lambs which were not "related" to them. They were offspring of the prize ram and of the original ewe which provided the egg cells.

The ewe herself was mated again with the ram after removal of the egg cells, and she reproduced a single lamb, making eleven lambs by one mother in one season. Geneticists at the farm believe that an even larger number of eggs could be transplanted, and that the same method could be used for cattle.

The Bugs Have It It beats all how the scientists are coming up with answers to questions that have stumped us down through the ages. An old one, "Where did all these damned grasshoppers come from so sudden?" is the latest to fall before the brain trust. If an insect lays one hundred eggs (a female fall armyworm, incidentally, lays about 1,000), ninety-eight would have to die in each generation to keep the population steady at the existing level. Let's say it doesn't rain for a few weeks at just the right time and instead of ninety-eight dying, only ninety-six die. Then the size of the population will double itself in a single generation. That's where the grasshoppers and the boll weevils and the flies come from. And that's not much comfort, either, for the same scientists tell us we're likely to lose our battle with insects unless we observe eternal vigilance.

New World Pig Champ: A Woman The Russians beat us with Sputnik and now comes a humiliating bit of news which will redden a lot of faces in Iowa and elsewhere in the Pig Belt of America. And to rub it in, the new World Pig Champ is a woman.

A British woman, Mrs. B. A. Revell, of Yorkshire, early in January was awarded a silver cup and £50 cash and declared World Champion for a litter weighing 1,134 lbs. at 8 weeks. Mrs Revell's sow broke the old world record, also held in Britain, of 966¼ lbs. for 18 piglets from one sow. This litter weighed 54 lbs. at 8 weeks and was suckled in two shifts.

To help boost world food production, the *Farmer and Stock-Breeder*, a farm magazine published in London, offered, a year or so ago, a silver cup and a money prize to the first pig breeder in America, the Commonwealth, or Europe to produce an eight-week-old litter at the record weight of 1,000 lbs. or more.

The Ubiquitous Coyote Out in Kansas, where the coyote is a perennial problem, they're tackling his extermination on a scientific basis. One thing they've found out is that every time the exterminators come up with a new method, the coyote changes his habits—he seems to anticipate every trap set for him—always two jumps ahead of mere man. Unlike man, the coyote changes with a changing world. Another interesting thing they've come up with is a catalog of what the critter eats. This was done by examining the stomachs of 1656 animals, a messy job if you ask us. An adult coyote will eat 140 rabbits a year, about half his diet. About a fourth of his annual food comes from carrion; rodents and other small mammals add up to 8.5 per cent (1,000 meadow mice a year, for example, and good riddance); and chickens, 7.3 per cent. This last will be his undoing, we predict.

(*Continued on page* 128)

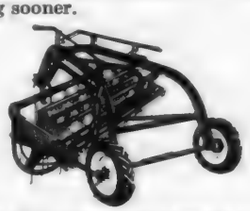
QUALITY HAY

gives you up to 50% more feed value

Easiest way is Hay-in-a-Day

With the Hayliner 68 (opposite page) and these other New Holland Hay-in-a-Day machines, it's easy to make quality hay that will help you produce *more* milk and meat on *less* supplemental feed!

Model 440 Mower-Crusher lets you mow and condition in one fast operation. Hay cures more rapidly, is ready for raking sooner.



Model 55 Rolabar Rake gently rolls up fluffy, fast-drying windrows. Hay soon reaches 40% moisture content—ready for baling.

Model 706 Crop Dryer dries hay overnight in mow or drying wagons. *You store top-quality hay immediately!*

Twine and wire. *Super 9*, 9,000 ft., 325 lbs. av. tensile strength. *Long 10*, 10,000 ft., 290 lbs. New Holland wire is tempered for toughness.

New Holland Machine Company
903 Oak Street, New Holland, Pa.

Please send me free *Hay-in-a-Day* booklet and catalogs on these machines:

_____

_____

Name: _____

Address: _____

NEW HOLLAND

Nation's Farmers Report on 1957 Corn Yields

GOOD FOR SOME—TOUGH FOR OTHERS

The 1957 corn growing season was one of extremes. Wet weather held up planting and drowned out crops along the Minnesota and Indiana river bottoms. Later, droughts and hot winds damaged crops in a "hit or miss" pattern from coast to coast. But 4,790 farmers representing 37 states and Canada in DeKalb's National 1957 Selected 5-acre Corn Growing Contest, proved once again that farming "know-how" and good seed corn can bring in high average yields.

203.47 BUSHELS PER ACRE*—WOW!

Henry Penning, Decatur, Michigan is the new 1957 DeKalb National Selected 5-acre Corn Growing Champion. His field of DeKalb 402 was grown on Muck soil. Giving the Champ a "run for his money" was Robert L. Maulden, Pasco, Washington with a "whopping" 195.03 bushel to the acre yield.*

4,790 Farmers from 37 States and Canada report yields which average 109.17 bushels per acre.*

WORLD'S LARGEST FAMILY

During the past 19 years, over 70,000 farmers in the United States and Canada have participated in the DeKalb National Selected 5-acre Corn Growing Contests. This great family of farmers has averaged around 100 bu. of DeKalb Corn per acre* throughout nearly two decades.

DEKALB—THE "COMMON DENOMINATOR"

It's not unusual for one or more farmers to raise 100 or even 200 bushel corn, but when 4,790 farmers from Delaware to Oregon and Canada to Mexico average 109.17 bu. per acre*, you know it takes more than just good farming...it takes good seed. It's no accident that all of these farmers plant DeKalb...they've found that it stands, matures early and brings them high yields. Is it any wonder more farmers have planted DeKalb for 18 straight years than any other seed corn?

Figures show average state yields* of all contestants.

214 FARMERS BREAK 150 BUSHEL* MARK

214 farmers from 18 states, turned in yields of over 150 bushels per acre.* The state reporting the most "150 bushel and over" yields was Colorado with 40.

CANADIAN FARMERS "KNOW HOW"

Winning over 165 entries from Canada, Charles Lawler, Oxford County, Ontario chalked up a yield of 128.71 bushels per acre.* This is one of the highest individual yields ever reported from Canada. All contestants from Canada made an excellent average of 98.97 bushels of DeKalb Corn per acre.*

"TEAMWORK" MAKES A GREAT NAME

As the DeKalb family of farmers grows, so do the vast DeKalb Research and Testing Programs so necessary for the development of better DeKalb Seed Corn, DeKalb Chix and DeKalb Hybrid Sorghum. This cooperation between DeKalb and its many thousands of customers creates a tremendous force for a better, more profitable way of farm living.

*All yields were made on Selected 5-acre Contest Plots.

DEKALB AGRICULTURAL ASSN., INC.

Commercial Producers & Distributors of DeKalb Seed Corn, DeKalb Chix & DeKalb Hybrid Sorghum.

DEKALB, ILLINOIS

In medium working conditions, this TD-6 is pulling the 5-furrow McCormick No. 16 moldboard plow. Production: 18 to 20 acres daily, on only 20 gallons of diesel fuel! Rubber-cushioned seat and arm rests, clean flush-deck design, and new booster steering add operating ease!

How a 4-5 plow TD-6 *CAN POWER YOU UP .... to top farming efficiency!*

On stubble, slippery cover crop, or soft seed bed, the International TD-6 delivers its full "4-5 plow" drawbar pull. Traction-gaining distribution of weight—8,700 live-action pounds—gives you full advantage of all 51 hp. developed by its heavy-duty International diesel engine.

Try a TD-6 on your farm for size. See how its positive, light-treading traction steps-up farming quality, makes big savings of time and labor. You'll prove you can cash in on big-hitch, top-efficiency farming dividends—whether or not you have "traction problem" conditions that stump other power!

Like all bonus-powered International crawlers, the TD-6 gives you the power-saving, long-lasting, easy-operating Cerametallic-faced engine clutch! It gives you exclusive International gasoline-conversion diesel starting, and other "extras" as standard equipment!

For steady, full-load performance, the TD-6 has the positive temperature control of modern pressurized cooling—special delivery full-pressure engine lubrication through drilled passages—bellows-seal protected track-roller bearings!

Measure the money-making advantages of switching to big-hitch TD-6 power compared to anything else on wheels or tracks. Prove TD-6 performance with matched McCormick® equipment. See your International dealer for a demonstration!

With McCormick farm angle dozer, this TD-6 earns spare-time income cleaning ditches, doing other good-paying conservation jobs. With this versatile carrier, simply head in for dozing; back in for tool bar tillage, unlimited!

SEE YOUR **INTERNATIONAL HARVESTER** DEALER

International Harvester Products pay for themselves in use—Farm Tractors and Equipment . . . Twine . . . Commercial Wheel Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois.

Send for FREE facts

International Harvester Company
P. O. Box 7333, Dept. FQ-3
Chicago 80, Illinois

Please send me free material checked:

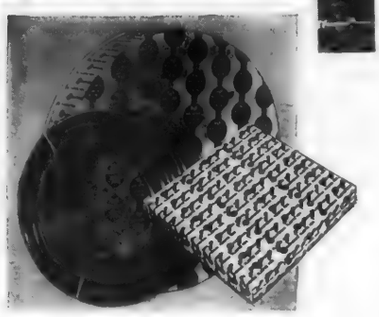
☐ New Bonus-Powered International TD-6 catalog.
☐ McCormick No. 16 High-Clearance Heavy-Duty Moldboard plow booklet.

Name_____ ☐ Student

Address_____

P. O._____ State_____

My IH dealer is_____



Can I afford to irrigate?

If you've been asking yourself this question, you probably feel, as do most farmers, that *you can't afford not to irrigate.* But perhaps the initial cost of the equipment is holding you back. If so, it's time you investigated USS NATIONAL* Polyethylene Pipe. Not only is this plastic pipe priced to fit your budget, but it's a labor-saving cinch to install . . . a one-man job.

NATIONAL Polyethylene Pipe is flexible—can be run around corners and over obstructions. It's lightweight—can be carried in a roll like hose. And it's tough—resists rot, corrosion, acids, alkalis and most chemicals. Moreover, it retains its toughness and flexibility in extreme temperatures, from -90°F. to +120°F. Available in ½-inch to 6-inch diameters.

NATIONAL Polyethylene Pipe comes in lengths up to 400 feet. It is made of 100% virgin polyethylene compounded with 2¼% carbon black to prevent deterioration from ultraviolet rays. Its smooth inner surface offers low flow resistance, inhibits chemical deposits.

NATIONAL Polyethylene Pipe is also perfect for sprinkler systems and stock watering lines—in fact, all cold water utility lines around the farm. For more details on the many uses of NATIONAL Polyethylene Pipe, write to National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa. Ask for Bulletin No. 29.

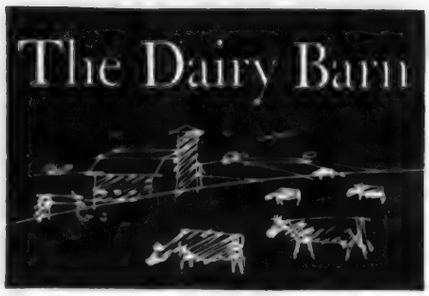
*Trademark

This seal of the National Sanitation Foundation means Tested . . . Approved . . . Sanitary!

NATIONAL TUBE DIVISION, UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS NATIONAL **Polyethylene** PIPE

UNITED STATES STEEL



What Price Milk? How much influence does price have on milk production? Very little in the short run, is the conclusion of Dr. C. E. French and Douglas Kranz of the Agricultural Economics Department, Purdue University. French and Kranz recently completed a survey of 97 dairy farmers in the Fort Wayne area in the course of which 30 of the producers admitted that they did not understand how milk prices were calculated; only 30 knew within 10 cents per hundred the price they received during the last pay period; 24 said they never watched prices in other markets and only 14 indicated that they did watch other markets closely.

These farmers had been dairying for an average of 28 years each and maintained herds averaging 13 cows. Prices did not seem to be too important in determining herd size, either. Only 21 indicated that they would increase their herd size if prices went up $1 per hundred. On the other hand, 63 said they would make no changes if prices dropped $1 per-hundred while 28 indicated such a drop would cause them to reduce their herd.

Bulk Tank Booklet Any dairyman considering the changeover from a can and cooler system to a bulk tank will find one of the latest publications of the Alabama Agricultural Experiment Station most helpful. Willis W. Marshall, Jr., Assistant in Agricultural Economics, and Joseph H. Yeager, Associate Agricultural Economist, have combined efforts in the preparation of a booklet entitled, "Questions and Answers about Bulk Milk Tanks."

They have gone into the economics of the bulk tank in detail; and since the tank installation is quite expensive—one dairyman with whom they worked paid as much for his tank as he did for his entire farm several years ago—these are important details. They indicate that in many cases dealer premiums will be needed in order to pay for the system. Indications are that all of our milk plants will soon handle only the bulk product so the producer must make up his mind whether to make the change or get out of dairying. If he makes the change the question is, whether he should put in a larger tank than his present operation calls for and increase the size of his herd to take advantage of the lower unit costs that go with increased production.

(*Continued on page* 164)

Sign of the Times

THE BIG SWING is to

REGISTERED HOLSTEINS

Wherever cows are milked, the big swing is to big, rugged REGISTERED HOLSTEINS.

REGISTERED HOLSTEIN owners the country over are finding more milk per cow the practical key to more milk and more profit per acre...per man-hour...per dollar invested.

Tailored to today's needs by centuries of breeding and selection, REGISTERED HOLSTEINS have the size and the capacity to handle modern big-tonnage yields of pasture, and convert grass to milk at top efficiency.

And the moderate-fat milk which REGISTERED HOLSTEINS produce so abundantly has built-in marketability . . . is in ever-increasing demand on free-choice markets everywhere.

Keep in step with the trend of the times in 1958... plan in terms of bigger dairy profits ...join the big swing to REGISTERED HOLSTEINS.

Registered HOLSTEINS *Breed of the Times*

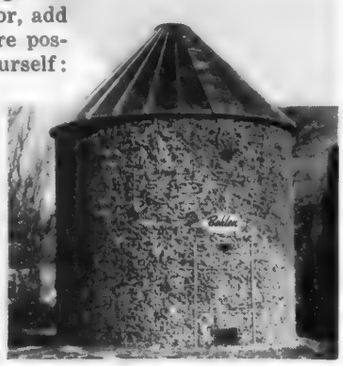
fit the farm...fit the market

THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA

BRATTLEBORO, VERMONT

How Behlen common sense PRODUCTS can boost your '58 crop returns

In design, in pricing, in material quality, Behlen sticks to common-sense practices. This produces buildings and equipment that reduce operating costs, save labor, add to the life of the equipment you buy, and where possible, increase actual value of crops. See for yourself:



1. Behlen—The COMMON SENSE Grain Dryer

It took Behlen engineering to produce a dryer that *dries* with controlled air movement . . . not grain movement. Dries grain *fast* and uniformly. "Full Cycle" Grain Handling. Exclusive new Automatic Moisture Control automatically shuts off dryer when grain reaches desired moisture content. Big Axial Vane Fan with variable pitch blade. Plus many more Behlen bonus features. Model sizes: 250, 375, 500-bu.

2. Behlen—For COMMON SENSE Crib Design

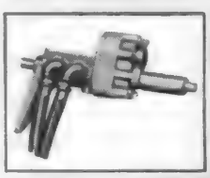
Your corn crib dollars go farther—*years* farther—with a Behlen Corn Crib. Behlen is the heavy bar-mesh steel corn crib that's galvanized after welding, eliminating risk of rust! New Steep-Pitch Roof makes faster, full-capacity crib-filling easy. No need for hand leveling. Elevator lies against roof with spout directly in peak opening; no extra chute needed. Sizes, 611 to 1,940 bushels.

3. Behlen—COMMON SENSE Grain Bin Features

Behlen's advanced design, using the extra strength of deeper-corrugated heavy galvanized steel gives you a new high in strength and rigidity. Behlen's exclusive Double Seal door "keeps grain in; keeps rain out"; eliminates need for cross-bracing, yet increases bin strength. Better double-door design aids in emptying out grain — either partially or completely. There's a model for your needs—1,000 to 3,200-bushel.

4. Behlen—COMMON SENSE "Curvet" Building Construction

"Curvet" is Behlen's newest development using the advanced "self-framing" principle. Unique use of channel-ridged, heavy-gauge steel panels gives far greater strength. Easy to assemble with unskilled labor. Available in 32′ and 40′ widths—unlimited lengths. Adaptable for any job for grain, seed or machinery storage to dairy barns, livestock housing, etc. Before you put up *any* building, investigate the Behlen Curvet.



5. Behlen Powr-Steer COMMON SENSE "Tractor Modernizer"

Enjoy the safety and easier, more efficient tractor handling of power steering on your present tractor. It takes only a few minutes to attach low-cost Behlen Powr-Steer. Fits practically every make; ask for a demonstration.

WANT MORE INFORMATION?

Then write us for literature about the Behlen products that interest you. No obligation!

BEHLEN MANUFACTURING CO.
Dept. F-3 Columbus, Nebraska

Behlen Mfg. Co., Dept. F-3
Columbus, Neb.

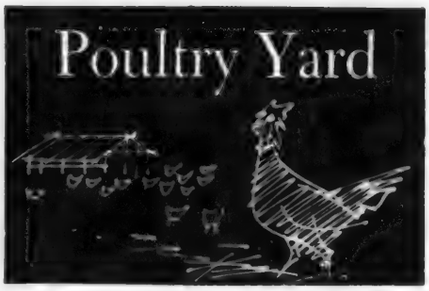
Without obligation to me, please send literature on the subjects checked below.

☐ Behlen Grain Dryers ☐ Behlen Corn Cribs
☐ Behlen Grain Bins ☐ Behlen Steel Farm Buildings
☐ Behlen Tractor Powr-Steer

Name_____

Address or RFD_____

Town_____ State_____



Free Advice The services of a German physicist, Dr. Walter Lissauer, who helped perfect the X-ray machine and was one of the designers of the Fokker fighter plane, are being offered to the poultry farmers of America. Dr. Lissauer's brains and the training and experience of other technicians are being put at the disposal of poultry farmers by the Mechanical Poultry Feeders Association for the purpose of solving mechanical feeding problems with present equipment and for working toward better designs. The new advisory group can be reached through the Mechanical Poultry Feeders Association, 333 N. Michigan Avenue, Chicago, Illinois.

The Worse The Better Poultry farmers who learned a few years ago that all of their hard labor spent on cleaning coops actually was harming their birds—depriving them of needed nutrients—won't be surprised to learn that scientists have now found that poor corn makes better feed than good corn. A reasearch report from the University of Tennessee shows that broilers fed 30 per cent damaged kernels made just as good gains in growth, feathering, and feed efficiency as birds fed Number 2 yellow corn. As a matter of fact, 55 per cent damaged kernels brought better gains to female birds than the test group on Number 1 yellow corn; and so did Sample Grade corn with 30 per cent mold damage. Since damaged corn is by no means uniform and since there are many molds that might harm chickens, the Tennessee scientists recommend that if you are going to feed damaged corn you should "try it out on the dog." Feed a lot of it to a few birds for a week; if they survive in good health, try it on the whole flock.

Chick Diet For Children Many a farm wife has accused her husband of thinking more of what he feeds his stock than what he eats himself. The same thought occurred to Dr. Robert L. Squibb, Chairman of the Poultry Department of Rutgers University, a few years ago when he was doing some animal nutrition work in Guatemala. Seeing some undernourished children with their swollen bellies, blackened skin, and open sores, Dr. Squibb said, "My animals are a lot better fed than these kids." He happened to be talking to the right man

(*Continued on page* 166)

Enjoy the Voice of Firestone on ABC television every Monday evening.

"GREATER TRACTION, BETTER FLOTATION SOLD ME ON FIRESTONES!"

says Robert Erickson, Minooka, Illinois

Robert Erickson farms 310 acres of Illinois gumbo soil. You can't beat it for top-notch yields, but it *can* beat you with poor traction—if you let it.

Outstanding farmers like Mr. Erickson who really know this soil also know there's one sure way to beat fuel-wasting wheel slippage—and beat it for good. That's with economical Firestone tractor tires.

Here's what Mr. Erickson says about Firestones: "When it comes to greater traction and better flotation, Firestones are definitely the leaders. In tough spots they really grip and in the soft stuff they stay on top. I've never been able to beat 'em for wear, and I go for the fast service my Firestone dealer, Robert P. Fournier, gives me."

Mr. Erickson is well known as a plowing champion. He's won 13 trophies and several medals. In 1954 and 1956, using Firestones, he won the Illinois Championship and in 1954 he was National Champ. In 1955 he represented the United States in the World Plowing Contest in Sweden.

Robert Erickson with trophies he has won in state, national and international plowing contests.

See your Firestone Dealer or Store next time you're in town. He's a farm tire expert and is ready to help you with all tire needs. If you have tire trouble, he will loan you new Firestone tires to use while yours are repaired or retreaded.

ALWAYS A YEAR TO PAY

Firestone

BETTER RUBBER FROM START TO FINISH

Copyright 1958, The Firestone Tire & Rubber Company

Gamble on Cholera? No thanks! I'm seeing my pigs are vaccinated!

It always pays to

consult your veterinarian

he knows best

—what's best

Hog cholera is still the greatest menace to a pig crop, the most serious threat to swine profits. Safeguard your herd with the best protection money can buy. Have your pigs vaccinated. For proper timing and best vaccinating procedure depend on the professional experience of your veterinarian.

M·L·V is the original, first-licensed, modified live virus vaccine. M·L·V and serum, used simultaneously as recommended, establish immediate resistance, long-lasting immunity. Successfully used on millions of swine. M·L·V is patented—a product of the world's largest exclusive producer of veterinary products.

The original Modified Live Virus Hog Cholera Vaccine

FORT DODGE® **M·L·V** TRADE MARK

FORT DODGE LABORATORIES, INC., FORT DODGE, IOWA

Mail this Coupon

for Bigger & Better Crops in '58

If desired, use our Easy-Payment Plan (see coupon)

TEST YOUR SOIL

Get up to 200 Bu. Corn per acre • 100 Bu. Wheat
30 Tons Tomatoes • 750 Bu. Potatoes
5 Tons Hay • Up to 300% Increase in Milk

Make More Money in Spite of Lower Prices!

Fields full of healthy, vigorous crops are a beautiful, satisfying sight to any farmer. They are proof of a job well done! Whether you farm 10 acres or 1,000, Soil Tests will make every acre a record breaker. You'll have yields of better quality, at lower cost. Every field you test can bring you as much as $500 or more in extra profit — at the same time you're building up your land instead of wearing it out.

Save Up to $15 an Acre on Fertilizer

Besides getting bigger yields you'll save money on fertilizer — use only what your soil needs. Guessing costs plenty — wastes both time and money. A Pennsylvania farmer was going to spend $700 for lime but not a single field needed any; some already had too much. He not only saved $700, he got better crops without it.

You can't afford to buy fertilizer and not know it's what your soil needs. Soil testing makes it a sure investment. You'll get back up to $10 or more in extra yield for every dollar's worth of fertilizer, like the Ohio farmer who boosted corn yields 300%, oats 500%, wheat 100%, hay 300%, with his Sudbury Soil Test Kit.

Farmers deLuxe Soil Test Kit

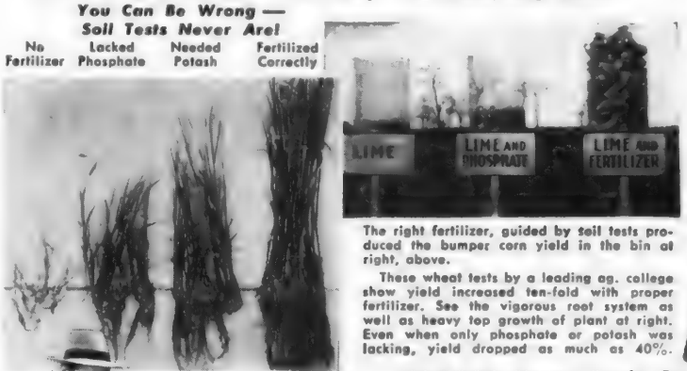
So simple anyone can use it! So reliable that county agents, ag. colleges, extension workers and progressive farmers everywhere depend on it. Complete with everything for hundreds of tests. More valuable than all your stock and tools! Shows right amounts of nitrogen, phosphate and potash for each field. Also whether lime is needed (pH) and how much. Lifetime welded steel chest with carrying handle. Easy instructions show needs of 225 different crops. Ready to use anywhere, anytime, even out in the field. No delays waiting for reports — the answer is printed right on the chart. Stop guessing — order today. **Big Value, only $29.95.**

No Knowledge of Chemistry Needed

Easy as Reading a Thermometer

Even your first tests will be accurate and reliable. Takes only 10 minutes, costs less than 10c a test! The Dept. of Agriculture approves of Soil Test Kits for farmers.

You Can Be Wrong — Soil Tests Never Are!



The right fertilizer, guided by soil tests produced the bumper corn yield in the bin at right, above.

These wheat tests by a leading ag. college show yield increased ten-fold with proper fertilizer. See the vigorous root system as well as heavy top growth of plant at right. Even when only phosphate or potash was lacking, yield dropped as much as 40%.

Better Crops Guarantee

You take no risk—even next fall if you didn't have bigger, better crops after using your Soil Test Kit this spring and summer, send it back and we'll return your money — our Daring Guarantee!

SEND NO MONEY —We'll mail C.O.D. plus postage. Or send check and we'll pay postage, saving you from $1.91 to $3.55 in postal charges.

FREE BOOK —If you send check, we'll also include a valuable book on farm management, "Our Land and Its Care." If not delighted with your Soil Test Kit, return it in 10 days for full refund.

Money-Back Guarantee

FREE TRIAL

500,000 Users Can't Be Wrong!

Dealers: Write for Special Offer

S.H. of Michigan "guessed" his potato field had enough potash but needed nitrogen. Tests showed he was wrong. He used potash and doubled his yield!

R.S.G. of Indiana tested his soil and has reduced fertilizer costs by using only what his Sudbury Soil Test Kit showed was needed.

A.D. of Indiana nearly doubled his corn yield after testing his soil.

A.F.B. of Iowa increased his bean yield 50% by correcting phosphate and potash deficiencies his Sudbury Soil Test Kit revealed.

W.L.D. of Pennsylvania saved $400 on fertilizer. "The Kit has paid for itself over and over again."

G.H., Ohio "Have made many tests; like its simplicity and accuracy. Worth 1000 times its cost on my 320 acres."

SUDBURY LABORATORY, Box 2K, South Sudbury, Mass.

World's largest makers of Soil Test Kits

SUDBURY LABORATORY, Box 2K, South Sudbury, Mass.

Send me the Farmers deLuxe Sudbury Soil Test Kit at the special low price marked below:

☐ Enclosed is $29.95; send postpaid; include free book, "Our Land and Its Care."

☐ Send C.O.D. plus postage.

Name .....

R.D. or St. .....

P.O. ..... *Zone* ..... *State* .....

☐ Send on Easy-Payment Plan — I'll pay mailman $4.95 plus postage, then 4 monthly payments of $6.75 each.

PURE-BRED CHAROLAISE BEEF CATTLE

MR. CATTLE BREEDER—Times have changed and *you know* it.

NO ONE—but no one makes any money with the short coupled, compressed beef animals. They served a wonderful purpose when beef was high and land and feed were cheap. But now rising costs have caught up and the party is over.

BIG CATTLE, enormous cattle, long cattle with a lot of expensive cuts and red meat are being searched for all over the world. The pure-bred Charolaise is the largest beef animal known; weight-for-age, no breed even comes close.

If you intend to stay in the beef business and hope to compete, you will have to have bigger cattle.

Start a pure-bred Charolaise herd now. A pure-bred Charolaise herd is the foundation from which all cross-breeding, upbreeding and breeding for bigger animals will spring. We will help you get started.

It takes a bit of money, but we will give you three years to pay—if you need it.

Write for descriptive booklet.

TURKEY RIDGE FARM

Member of the American Charolaise Breeders Association
Member of the American Charbray Breeders Association

JAMES CLANCY, Manager **MORRIS COHON, Owner**

NEAR—PORTLAND, PA.

P.O. Box R.F.D. No. 1 **Bangor, Pa.**

Telephones: Twin Oaks 7-6545 and 7-6184

Slash FEED COSTS

WITH THE REVOLUTIONARY NEW KAFF-A* LIFE-TIME FEEDING SYSTEM

Feeds the Rumen Bacteria
So they can feed the animal

MORE CHEAP NUTRIENTS FROM ROUGHAGE AND HOME GRAINS!

The biggest problem in feeding dairy cattle is to get them to eat enough roughage. The KAFF-A System solves this problem by feeding largely digested milk sugars and partially digested milk proteins to the rumen bacteria in the paunch. The bacteria then feed the calf, heifer or cow better digested grain and more cheap nutrients from pasture, hay and ensilage.

Two new Kaff-A Milk By-Products have been developed to feed rumen bacteria and "carry over" other essential nutrients.

At a cost of less than 10¢ per day for nursing age calves and less than 3¢ per day for other stock, Kaff-A enables you to . . .

1. Sell *all* your marketable milk and wean one-third heavier calves with rumens conditioned to continue fast gains.
2. Grow big-framed, big-barreled replacement heifers and breed them up to four months earlier.
3. Boost roughage consumption, increase milk flow and lengthen productive life of milking cows.

Free

Folder

"unlocks" low-cost roughage and grain for your herd to boost dairy profits. Ask your feed dealer or milk hauler. Or write us for Kaff-A System Folder and locations of "Example Herds" in your milkshed where you can see the Kaff-A System in operation.

*Kaff-A, Hidrolex, and DLW are trademarks for milk by-products manufactured exclusively by Consolidated Products.

CONSOLIDATED PRODUCTS, DIVISION
National Dairy Products Corp., Danville, Ill.

NEW!
RICHER FORMULA LOWER PRICE

ONLY $3.95 25-lb. box

KAFF-A
MILK REPLACER

is high in energy with pre-digested Milk Sugars from HIDROLEX*—high in milk amino acids, vitamins and minerals from DLW* whey fermentation solubles; High in fats with 10.5% animal fats, fish and vegetable oils. Contains over 70% milk solids from Hidrolex, DLW, buttermilk and whey—plus fish meal and added vitamins and antibiotic.

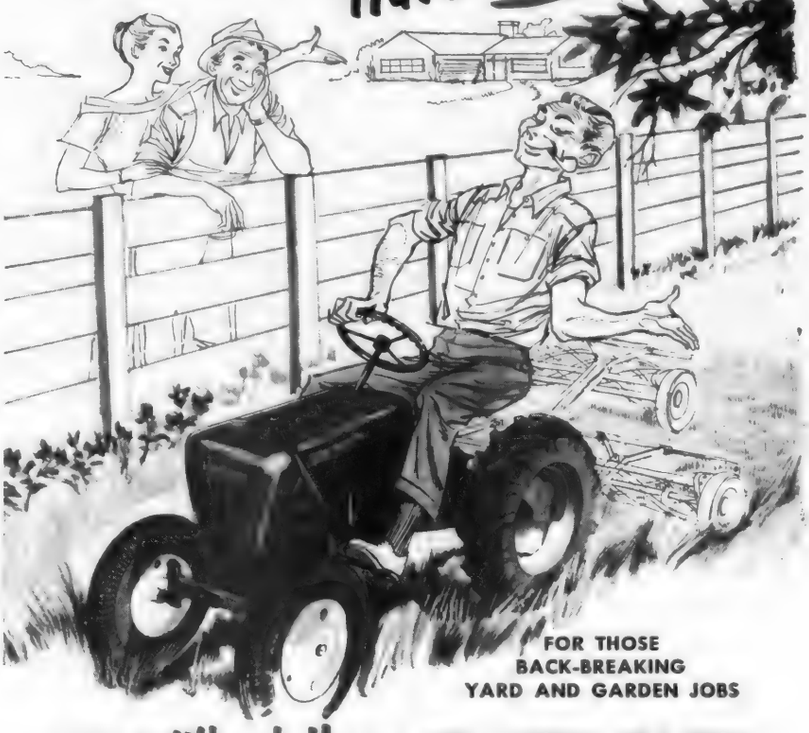
NEW!
RUMEN FEEDING MILK NUTRIENTS

ONLY $2.95 25-lb. bag

KAFF-A
BOOSTER PELLETS

continue milk nutrition through growing and productive life. Fermentation products from whey, fish, grain and antibiotic sources plus added vitamins and minerals feed the bacteria in rumen and supply "carry-over" nutrients to promote added intake of roughage and improve utilization of all feeds.

Get More Done... Have More Fun



FOR THOSE BACK-BREAKING YARD AND GARDEN JOBS

GET A Wheel-Horse FUN-WORK TRACTOR

Breeze through those tough yard jobs! Fun-test a Wheel-Horse—the modern way to really enjoy mowing, clearing snow, hauling fill or compost. Saves your back (and your heart) with extra hours for leisure year 'round.

Fun begins with solid comfort the moment you ease into the driver's seat. Set off at 6 mph in high... 1 mph in low. You'll find the all-new streamlined Wheel-Horse shifts, corners, backs, and stops with power response of a big tractor. It's the only yard tractor with automotive gearing, steering, and two-wheel brakes *as standard equipment.*

Take all jobs in stride with pull-power to spare! Solid weight of the all-steel body, and oversize 6:00 x 12 tractor-type tires provide plentiful traction for terraces or hilly ground. Fully guaranteed. Your only problem is with envious neighbors!

Start now to have fun... and get more done in one-third the time on a Wheel-Horse yard and garden tractor. See your nearby dealer today for a free tryout, or write direct. We'll forward his name with detailed color brochure giving complete specifications.

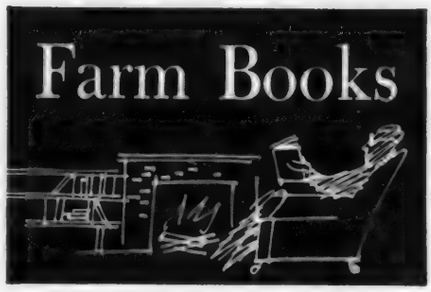
3½ ft. snow plow makes fast work of clearing long drives.

Select from 22 attaching tools including this self-dumping trailer, rotary and reel mowers, lawnsweep, fertilizer spreader, garden plow and cultivator.

Wheel-Horse PRODUCTS

51463-A U. S. 31, South Bend, Ind.

Farm Books



Mineral Nutrition and the Balance of Life, *by Frank A. Gilbert. University of Oklahoma Press, Norman, Okla. $5.95.*

The more we learn about any subject, the more we realize we still have to find out. So it was with nutrition. Man's first effort was to fill the bellies of himself and his livestock with food, just bulk. Then came the refinements and he learned to differentiate the food into carbohydrates, proteins, fats. From this point, still further refinements led to the discovery of vitamins and to the importance of minute traces of certain minerals.

The importance to plants, animals, and to man of minerals in the soil has been known or suspected for well over a hundred years, but the proof of the need for some of these materials was so refined that it had to wait until we were able to produce glass of such quality that impurities of the glass didn't affect the experiment.

In discussing these vitally important elements, Dr. Gilbert treats each mineral as a separate chapter subject. The historical background of our knowledge of the mineral, its importance to plants and animals, the effects of a deficiency of the mineral or of an overabundance of it, its relationship to other soil chemicals and the geographical regions of the deficiency of the mineral are all treated in the separate chapters on the different minerals. In this way, the reader is given an introduction to and a working knowledge of some thirty minerals which influence the health and well being of his plants and animals. These range from nitrogen, phosphorus, potassium, and calcium which he applies to his fields by the ton, to the trace elements which are figured in parts per million. The reader is also left with an appetite for more knowledge.

The King Ranch, *by Tom Lea. Little, Brown and Co., Boston. (2 Vol.) $17.50.*

Baseball had its Babe Ruth, horseracing its Man o'War, football its Red Grange and in American ranching the spread that symbolizes the industry is the King Ranch. The man-on-the-street who can't tell a maverick from a mangold still knows that the King Ranch is just about the biggest thing in American agriculture. While it doesn't quite measure up to the million acres which are the common estimate of its size, it still contains 726,924.12 acres, or almost 1140 square miles. In area it is immense. Its story, too, is heroic and Tom Lea has done it full justice.

(*Continued on page* 165)

THERE'S A PLACE ON YOUR FARM FOR A PIPER

. . . to give you swift, convenient, safe transportation

Most flying farmers . . . and there are thousands of them . . . consider their airplanes essential farm equipment. They've found a plane is useful in so many ways, both for business and pleasure. Flying to stock sales, spotting soil erosion and crop blight, checking fences and wells, picking up urgently needed parts and supplies, commuting from farm to city, from one farm to another – these and many other chores are done effortlessly, efficiently and economically in your own plane.

Frequent, more distant pleasure trips for the whole family also rank high among reasons why successful, forward-thinking farmers own their own airplanes. It's not uncommon to see flying farmer families touring the Caribbean, Latin America, Canada or Alaska in their own airplanes. Statewide flying farmer organizations conduct group flight activities – breakfast flights, tours, get-togethers.

Just the sheer pleasure of flying appeals, also, to the farmer or rancher. Flying provides a fascinating recreation, a relief from the day-to-day strain of conducting a farm operation. As one doctor puts it, "An hour in my Piper is like a day off." Not to be outdone, many a farm wife has taken up flying, too.

From the standpoint of time saved, plus pleasure, a plane for you, your family, your farm can prove a wise, sound investment . . . and surprisingly economical!

PIPER BUILDS A PLANE FOR EVERY FARM PURPOSE

SUPER CUB. Workhorse for farm or ranch. Takes off, lands in 50 yards. Carries two, cruises 110 mph. PA-18-A model is world's most widely used plane for dusting, spraying.

COMANCHE. New, high-performance, roomy, four-passenger, all-metal plane with many advanced aerodynamic and safety features. Cruises 160 mph with 1,200-mile range.

TRI-PACER. World's most popular four-passenger plane. Combines the most features to simplify flying. Cruises over 130 mph, has range over 500 miles, can carry 600 pounds of freight. Ideal all-around farm plane.

APACHE. Most widely purchased twin-engine plane. Carries 4-5 passengers over 170 mph in roomy luxury. Provides safe, dependable night and day transportation. Excellent short field and single engine performance.

YOUR OWN AIRPORT

Any level pasture or strip 100 to 200 feet wide, 1,500 to 2,000 feet long with clear approaches provides adequate landing facilities, makes your Piper as convenient as your car.

EASY TO LEARN

Your Piper dealer can teach you to fly easily, either with individual lessons by the hour or under the Piper "Learn as You Travel" program. He'll teach you FREE in your own Piper.

Why not send TODAY for more details

PIPER AIRCRAFT CORPORATION
Lock Haven, Pennsylvania

Please send me literature on:

- ☐ Piper Super Cub
- ☐ Piper Comanche
- ☐ All Piper models
- ☐ Piper Tri-Pacer
- ☐ Piper Apache

Name_____

Address_____

1-Q

MORE PEOPLE HAVE BOUGHT PIPERS
THAN ANY OTHER PLANE IN THE WORLD

At the market place, you know for sure that Morton Trace-Mineralized Salt helps your feeding program pay off...

Even if you use other minerals, Morton T-M Salt increases feed efficiency so that all your other feeds do a better job. Thus, you end up with lowered feed costs and with more meat, milk and wool to sell. That's because your animals stay healthier and gain faster when they get essential trace minerals in their salt every day. Morton T-M is a superior product because only top-quality compounds proved by research are used as the sources of the trace minerals.

Be sure to feed Morton T-M Salt, free choice, to all your beef cattle, dairy cows, sheep and hogs. You know they need it. They know how much. At your feed dealer's—bags and blocks.

MORTON T-M SALT

'58 Dodge Power Giants give you new style for jaunts to town . . . new power for heavy hauls!

Your first trip to town in a new Dodge *Power Giant* will give your spirits a wonderful lift.

People are bound to take notice, because Dodge is one truck that's really new for '58—from smart new styling to exciting new performance. Matter of fact, comparisons show that Dodge for 1958 leads the low-priced three *all four ways:*

1. Dodge leads in styling—with sculptured, flowing lines, dual headlights, richly chromed grilles—styling you can count on not to go *out* of style!

2. Dodge leads in V-8 power—in every single popular farm model. This reserve power gives you better performance, safer passing out on the highway, plenty of extra *pull* when you need it!

3. Dodge leads in payload. Advanced engineering adds strength without weight, lets you haul up to ⅓ more—save trips, time, fuel!

4. Dodge leads in economy—low in price, low in operating cost. Exclusive Power-Dome V-8 design gives *full* power—and more miles per gallon—on money-saving *regular* gas!

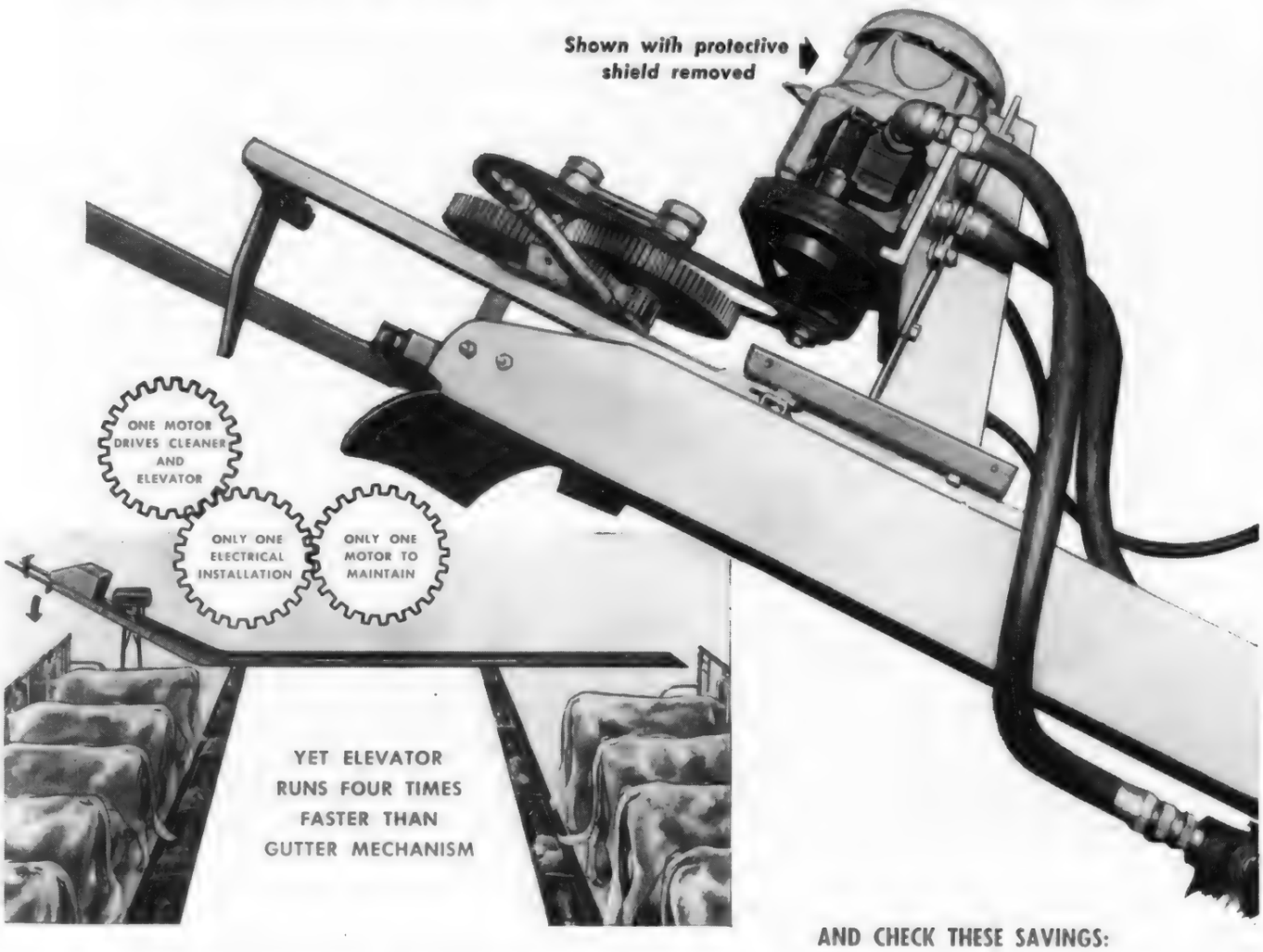
Remember, it pays to compare before you buy a new truck. So, instead of habit-buying the same old make, be sure to take a few minutes to drive a new '58 Dodge *Power Giant*—and to get your dealer's special Dodge Truck 40th-anniversary deal. You'll be money ahead if you do!

DODGE *Power Giants*

IT'S BY JAMESWAY

New dual drive power

for shuttle-stroke barn cleaner and elevator


Shown with protective shield removed
ONE MOTOR DRIVES CLEANER AND ELEVATOR
ONLY ONE ELECTRICAL INSTALLATION
ONLY ONE MOTOR TO MAINTAIN
YET ELEVATOR RUNS FOUR TIMES FASTER THAN GUTTER MECHANISM

It's new from Jamesway! Dual drive power — one electric motor cleans the gutter, loads the spreader.

Dual-drive savings start with first cost . . . continue day after day with lower operating cost than ever. It combines the simplicity of one power source with the smoothness of hydraulics.

Dual-drive! New Jamesway Power Choring! Fast . . . clean because it assures 4 to 1 elevator/cleaner speed to get the manure up the elevator — *FAST!*

For complete details write James Mfg. Co., Dept. FQ-38, c/o your nearest division office. Ft. Atkinson, Wis.; Lancaster, Pa.; Los Angeles 63, Calif.

AND CHECK THESE SAVINGS:

- Lower installation cost — less wire, conduit, time.
- Fewer parts to wear — less than 20% of cost in the gutter.
- Hydraulic piston — smooth fluid power, by-pass protected.
- No chains, gears, sprockets — gutter-bar tied to piston with *stainless steel cable.*
- Flat-bed elevator for fast, two-gutter delivery.

Jamesway®

FIRST IN POWER CHORING®
FOR POULTRY • FOR DAIRY • FOR LIVESTOCK

Here's what these practical farmers say about Armco Buildings

"My dairy buildings are an economical tool for the production of quality milk"

"Armco Steel Buildings made it easy to meet my dairy building needs," says E. E. Hutsell, owner of the Hutsell Dairy Farm, Lebanon, Ohio. "They provide an economical tool for the production of quality milk. They are comfortable in any weather; cooler in summer."

"It was easy and economical to build the Armco way"

That is the way farmer O. V. Anderson of the Anderson-Owens Sale Barn, located 1½ miles southeast of Rawson, Ohio, feels about Armco Steel Buildings. Mr. Anderson uses his 40′ x 60′ Armco Building as a sale barn for feeder calves. "These buildings are economical and can be used for many farm jobs," he says. "The 40′ span is clear of posts, which gives us more usable space."

"After fire hit us, we rebuilt for safety"

"After fire destroyed our barn and other farm buildings, we wanted to rebuild fast—but with a type of building that wouldn't contribute to another fire. We found the answer in Armco Steel Buildings. Our combination machinery storage and farm shop building (pictured) and our barn are Armco Buildings. Are they safer? You bet they are—and our insurance costs are lower, too." That's the opinion of Vernon Freeman, who operates the Freeman Farm near Muncie, Indiana, with his father, Ernest Freeman.

If you're planning a new building, it will pay you to get the full story on Armco Steel Buildings. Just fill in and mail the coupon.

ARMCO DRAINAGE & METAL PRODUCTS, INC.
78 Curtis Street, Middletown, Ohio

Send information on Armco Steel Buildings for the following uses:

_____

Approximate size _____

Name _____

Address _____ Town _____

County _____ State _____

ARMCO STEEL BUILDINGS

summer harvest

winter feed

This Summer—Condition your hay with a Cunningham

and you'll feed field fresh June Pastures all Winter long.

Cunningham

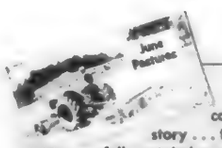
HAY CONDITIONER

Protein is the heart of your hay. Save it in the summer and you can stop buying it in the winter!

You can see the difference in the field . . . pick up a handful of Cunningham conditioned hay . . . notice how the crimped stems are losing moisture immediately, curing as rapidly as the undamaged, uncrushed protein packed leaves. The Cunningham, with exclusive swath level "sweeping action," conditions your hay by crimping . . . not by crushing or squeezing. No more "rain gamble". . . this hay is barn-ready 50% to 80% faster than unconditioned hay.

You can see the difference when you feed Cunningham conditioned hay in mid-winter. It's sweet smelling, palatable, natural rich green in color and . . . protein packed, top value leaves are in your manger . . . not left in the field, buried under winter's snow. You grow good hay in the fields . . . now you can save . . . and feed . . . up to 90% of this natural supply of protein-carotene. It's complete feed, without supplements . . . as nature intended. Your cattle know it . . . and show it . . . as they eat more, waste less of this full value hay.

See your dealer now . . . condition with a Cunningham next summer and you'll be feeding full protein June Pastures next winter.



MAIL COUPON TODAY!

Please rush me the free, full color "JUNE PASTURES IN JANUARY" story . . . the complete information on feeding full protein hay all winter.

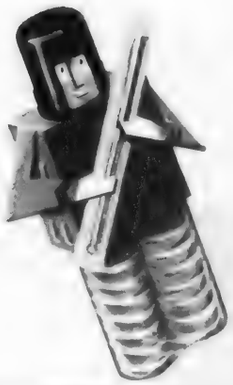
NAME_____

ST. OR R. R._____

TOWN_____ STATE_____

RAY CUNNINGHAM & SONS, INC.
501 GILLETTE ST., LA CROSSE, 22, WIS.

Why should you buy a Cunningham? Because it's the World's Number One Hay Conditioner with more years of proven performance, in more areas, for more profit-minded farmers than all the other makes combined. When you buy a Conditioner — be sure you get a Conditioner — get crimping action — get a Cunningham!



Wilson Watchman

"The Sentinel who Never Sleeps"

Exclusive DROP-IN refrigeration unit makes milk cooling SURE . . . quality PURE

Glacier-cools! *Magic Mist* makes cleaning easy!

Beneath its striking beauty you just know—is quality! The Wilson bulk cooler is built like a bank vault . . . to guard milk's goodness a reliable new way.

Wilson's new 5-surface *Glacier* Cooling (on all four walls and bottom) surrounds your milk with a chilling spray—cold as a melting glacier. More cooling surface—by far!

Milk cooling is worry-free with an emergency replacement WILSON WATCHMAN drop-in refrigeration unit handy at your dealer's. Just drop it in. Simple!

The WILSON WATCHMAN builds up a reserve Glacier of cold against a power failure. It pre-cools before milking . . . holds temperature down when warm milk is introduced, yet never freezes milk.

And best yet—it keeps stainless surface constantly coated with *Magic Mist* that prevents milkstone, makes washing wonderfully easy.

Look in the gleaming interior of a round-corner, work-saving Wilson . . . bright as the new dollars it can earn for *you*. The Wilson is quality-made for quality milk . . . *simplest cooler to clean and service ever built.*

COPYRIGHT 1958, WILSON REFRIGERATION, INC.

NEW DIMENSION Design . . . originated by Wilson. Low! Only waist-high for easy pouring and easy-reach cleaning. Compact! Fits your milkhouse. Cabinet protected by 10-year Wilson Warranty! (Optional.) Lifetime stainless steel and easy-cleaning *plasticized* white Du Pont Dulux cabinet. All stainless available. *Consult your dealer about low-cost financing.* Sizes from 100 to 700 gallons.

3-A meets 3-A standards

WILSON

KEEPS COOL in any emergency

Wilson Refrigeration, Inc. Dept. FQ Smyrna, Delaware
A division of Tyler Refrigeration Corporation

Rush information on Wilson Pay-its-Way Plan: ☐ Farm Size Freezers ☐ Bulk Milk Cooler ☐ Can Cooler ☐ My milk plant is going bulk.

Name_____

Address_____

Also print in margin the names and addresses of your favorite dealer and milk plant manager.

Transplanted Northerners are leading the way in cattle, citrus, flowers and vegetables in a new and expanding Florida farm boom

By R. J. McGinnis

While John Day works his Florida orange grove in bright sunshine, his Nebraska farm home (above) lies in the hard grip of frost and snow. Below is an aerial view of a part of the Hobbs flower and sweet corn layout near Ft. Myers. Mums are growing under the cloth.

Florida Transplants

THE SECOND YANKEE invasion of the South is well under way. Since the turn of the century affluent Northerners, willing to endure the rail trip, have thawed the ice in their veins on Florida beaches. These early visitors were transients, however, and rarely took root. A little later Northern money moved in and the sleepy cities began to buzz with industry. Luxury hotels, motels, and beach apartments bulged with frost-bitten tourists.

Now the Northern farmers have come, and full control by the invaders is just around the corner. The problem of feeding the multitude has strained the leisurely pace of Florida agriculture for a generation. Until recently milk trains came down from New England daily, and good steaks usually bore the stamp of the Kansas City packer. Smart Northern farmers, many of them at retirement age with a cushion of income already in the bank, see Florida not only as a land of balmy winters, but a land of wide open opportunity as well.

The progressive farmers of Florida are today predominantly transplants from north of the Mason Dixon Line. They have the get-up-and-go which generations of bitter winters have distilled in their veins. They are willing to work with their hands, which, to a Southerner of the old school, is a fate worse than death. They are made of the same stuff as their grandfathers who conquered the west. They have tackled the Florida situation very much in the same way as their forefathers tackled the forests of the Midwest, the Indians of the plains, and the long trek to California. There is nothing soft about them.

You'll find them in everything in Florida now—in cattle, in vegetables, in flowers, in citrus, in dairying. They've learned the new skills which semi-tropical farming demands, but they've brought along with them the old knack of making a seed grow and a steer fatten.

The climate is a surprisingly small factor in bringing them to Florida. They like that, too, but they like more the pace of a new country, which is developing fast and crowding opportunity toward those who recognize it and are willing to grasp it. The Northern farmer, accustomed to the feverish activity of planting and harvesting one crop a season, is entranced by the possibilities of a semi-tropical climate. Here a crop can be planted most any time and you can double up on your profits by several crops, or continuous crops, around the calendar.

Carl Day Grows Citrus

If you ask these transplants why they like Florida, they'll tell you that they like the climate, but press them and you'll find that this is only a parroting of Chamber of Commerce blurbs; the easiest thing to say. Go deeper and you'll find that the real reason is the challenge—the outlet for the pioneer spirit—and here they can make more dollars quicker.

Carl Day is a good example of the Florida transplant, who met the challenge. His home farm in Nebraska, which in 10 years will be in the select "Century Farm" class, is near a town with the improbable name of Weeping Water. Mr. Day, who is 81, and chipper as a beaver, never quite outgrew the notion that the grass is greener on the other side of the fence. His father went West to Nebraska right after the Civil War and bought up 375 acres of preempted land for $7.50 an acre. It was, and is, fine land, but Mr. Day as a boy remembers his father complaining that he had paid a mite too much for it. That was after a couple of years of drouth and grasshoppers.

Carl Day (left) with his son John (below) runs a double barreled Florida-Nebraska operation. Florida citrus props up Nebraska grain and meat. "We play Nebraska drouths off against Florida freezes," Carl Day says. "That's good insurance."

Carl Day was born on the farm. It was pretty lonely out there eighty years ago; neighbors were few and far away and mothers could still, with entire truth, threaten willful children—"If you're not good, the Indians will get you."

Carl Day sums up life on a prairie farm: "In Nebraska the wind blows when it's hot and the wind blows when it's cold. In the winter you have either wet slush or a flint-hard freeze and you have to fight drouth, grasshoppers, and quack grass. I often thought of getting away to some other part of the country where it wasn't so rough.

"Some of my neighbors tried Texas and a few went to California. I came down here to Bradenton to visit kinfolk back in 1939 and everything I saw convinced me that big things could be done down here. It wasn't old and settled like Nebraska, and things were popping all over the place. You couldn't buy a farm for a fair price back home and prices being what they are for corn and hogs, you couldn't make any money if you could buy it. Here, there's plenty of rough new land, 50 in. of rain, and plenty of irrigation water, and cheaper than in Texas or California.

"More than anything else," he explains, "I wanted to insure ourselves against the drouths and other hazards of Nebraska farming. I figured that the four cereal crops and the meat production in Nebraska, with three varieties of citrus and four of vegetables in Florida, even with its frosts, could not all go wrong at the same time. We would have more stability and more baskets for more eggs. I don't want to underrate our Nebraska operation. That farm has been good to us. It made our Florida operation possible. The one props up the other. I'm what you might call a double-barreled farmer."

Mr. Day doesn't exactly subscribe to the whole rosy picture he paints if he is pressed, for it isn't that easy in Florida. As everywhere, victory goes to the hard working. There's frost, and an occasional big blow, and the market always on the low side.

He paid his first visit to Florida in 1917. He liked what he saw, but it was not until 1939 that he made his move. He bought 10 acres of established citrus with an additional acreage of undeveloped land near Ellenton and put his son John in charge. The next year they cleared and planted 10 more acres and have added small plantings from time to time since to bring a total of 120 acres under cultivation. After the war his son John returned as a partner.

Their largest planting in one year was in 1957 when they put in 60 acres. While the trees are growing to the bearing age the Days usually put in vegetables between the rows. This carries the cost of fertilizer, spraying, and irrigating until the trees mature.

Undeveloped land of the type the Days cleared and planted was selling for $10 to $12 an acre in the thirties. The same land today brings $100 an acre. It costs $300 an acre to bulldoze off the palmetto and pine and $100 an acre for planting. Then there's a wait of 5 years until an orange tree begins to pay its way. In about 10

To R. H. Moore, Florida is a land of promise and opportunity. Burned out in Ohio, he sees his way to ownership of a 320 acre Florida dairy farm with an annual gross of $140,000. "This is the place to raise a family," he says. Here his daughter shows a new trick she has taught her two-year-old filly; date, the day before Christmas.

years the tree reaches its maximum yield and will hold up well for about 35 years, when it begins to fail.

The Days have 7 acres in grapefruit, which is a break-even crop, and the remainder of their 120 acres in early and late oranges and tangelos, a highly prized hybrid of the tangerine and grapefruit. In a normal year an acre of mature trees will yield 500 boxes. The gross income from an acre has hovered around $500 for the standard varieties, $800 for tangelos.

A crop requires 5 or 6 sprayings—a dormant spray, an oil spray, and 2 to 4 sulphur dustings. Irrigation is by gravity from wells. Florida has 50 to 55 inches of rain a year (last year a high of 74 in.) and irrigation is supplemental. A grove requires little care when once established and the big expense is picking. Labor is around 75 cents an hour.

Last year the Days grossed $15,000, about the same as they do on the Nebraska farm. This year, with the big frost in December, yields were cut, but with the short crop, prices will be higher. The Days once had a big mail-order business in the North, but the high express rates have cut this down. A bushel of select oranges selling for $2 in Florida will deliver in Ohio for $7, pricing them out of the market. The concentrate industry was the salvation of the citrus growers, and fresh, chilled juice, delivered by dairies, affords a year-'round stability. There is no surplus crop.

The Days have reversed the usual procedure for Florida vacations. They take a five-month annual vacation back on the farm in Weeping Waters. There they help out a little with the crop on the home farm, which another son, Eugene, manages. They escape the Northern winter and the Florida summer heat, make themselves a substantial income, and enjoy life about as well as anyone can.

Carl Day thinks Florida is a better place to work than to retire. "Takes too much money to retire," he says, "if you don't

have an income. Prices are high and the boom is sending them even higher. Establishing a business or farming operation in Florida is very speculative at the present time, but a good man can do it. You get more for a day's work and an invested dollar down here than you do in the North. If you're willing to work, you will come out all right—so few people who come down here want to work. Myself, I'll want to work a good many years yet. A man is only 80 once."

Moore the Dairyman

R. H. Moore is one of the larger milk producers around Fort Myers. He milks 300 cows and last year grossed $140,000. Moore can hardly believe the dazzling opportunity which Florida tossed into his lap. Three years ago he was burned out in Ohio and was heavily in debt.

Born in Cleveland, he was orphaned as a baby and was "taken in to raise" by a a dairy farmer near Ashtabula. He grew up with cows in his blood. Soon after his marriage he rented a place and started in business for himself. This was in 1933, the depression was in full swing, and the going was rough. But by good management and thrift during the next 10 years, he was able to make a down payment on a farm of 80 acres. He built a new barn with a big silo and was milking 50 cows by the summer of 1950.

Then it happened—the barn caught fire and burned to the ground, destroying his winter hay. Silage in the field was lost. "I was licked," he says. "I had to sell my cows, for I had no buildings for them and no feed. I couldn't find a place to rent on such short notice. I salvaged what I could from insurance and the sale, paid off the mortgage, and loaded my wife and six children in my jalopy and headed for Florida."

He fine-combed the area around Bradenton for a place to rent or buy. "Then in the spring," he says, "I had a real lucky break." The former owner, discouraged by his failure to get competent help, decided to give up his 320-acre dairy farm. Moore impressed him. He sold him the place, taking faith in Moore in lieu of big cash.

With the farm went 198 milkers. In two years Moore has added 100 milkers and has 60 dry cows and 50 heifers and calves. He employs 5 men, one a married son. The cows are milked twice a day and the men work two 8-hour shifts. The barn has only a 24-cow capacity, but an addition, soon to be completed, will increase this to 64. A 1000-gallon stainless steel Valco bulk tank was put in a year ago.

The cows are given a feed of 12 per cent supplement while they are being milked. This costs him $2.75 per hundred. The two feedings of supplement, a dairy grain ration and the clover and the pangola grass pasture is the total feed. Moore buys corn silage for two 250-ton Harvestores, but the silage is used only as standby and he doesn't depend on it. He says he prefers to have the cows take the grass direct from rotated pastures and doesn't believe he could make grass silage because of heavy rain.

Of the 320 acres, all but a few acres of swamp are in well-developed white clover and pangola. He plans to renew the clover pastures every two or three years, but the pangola is more permanent. From 500 to 600 pounds of fertilizer are top dressed each year.

Moore values his land at $500 an acre. Undeveloped land in this district sells for around $200 an acre, quadruple what it was before the present real-estate boom on the West Coast. To clear and plant takes another $200. There are thousands of acres of undeveloped land in Florida, not all as high priced, awaiting the bulldozer and the plow.

"About the only similarity between dairying in the North and dairying in Florida is that you use cows and milk them about the same way," says Moore. "Down here the only building you need is a milkhouse. The cows are outside 12 months of the year, and we have almost year-'round pasture. We get 61 cents a gallon for 4 per cent milk, a good price. But cows down here produce only about two-thirds what they do in the North, so we have to get more. Labor is about the same. I pay a little higher than the average around here, and I get better help."

Moore is raising only a few of his replacements. He has mostly good grade Holsteins, Guernseys, and Jerseys. The Jersey does best in the Florida climate, he believes, but he's staying with the Holsteins because of their higher production. It takes a Northern cow a year or more to become acclimated, so he is buying mostly local replacements. His new barn addition will permit a 25 per cent increase in his herd.

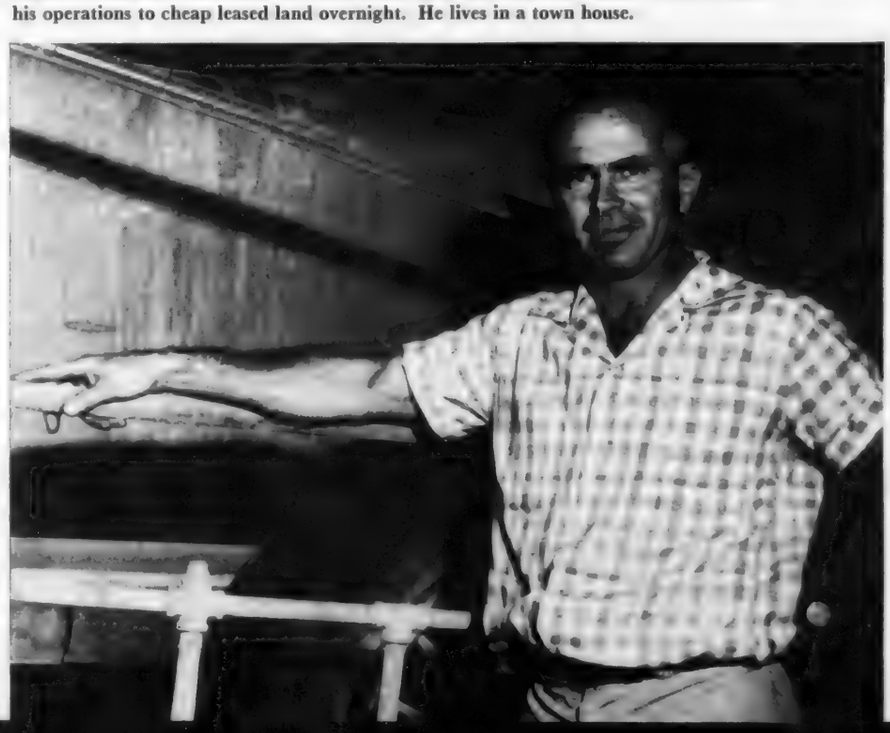
He has very little invested in farming equipment—a disk for reworking the pastures, a drill, and a tractor. His feed bill is his big item of expense—$70,000 last year.

By the turn of a valve Herb Rockow spills a six-inch stream from a 420-foot artesian well over his 80 acres of cucumbers, peppers and tomatoes. Note mineral deposit on pool edge.

The Moores live in a pleasant ranch-type house with typical Florida out-door atmosphere. His six children range from 8 to 22. "We like it here," says Mrs. Moore. "Up in Ohio we had to have two or three sets of clothes for the seasons

(*Continued on page* 104)

A small shed on Herb Rockow's 110 acres of vegetables houses his entire capital investment, three tractors, three trucks, a sprayer and cultivators. He can move his operations to cheap leased land overnight. He lives in a town house.



FEEDING FOR EARLY

SINCE THE GREAT chemist, Justus von Liebig, formulated a milk substitute for feeding calves a hundred years ago, we have been tinkering with feed, trying to raise a better calf more cheaply. Now, one of the big dairy-products companies has come up with a feed additive which, it is claimed, will give calves such a head start that heifers will reach breeding maturity three or four months earlier than normal; it is also claimed that it will help older cows digest poor quality roughage and grain better than they now do.

Perhaps the oddest part of their claim is that the new feed stuff is not designed for cattle feeding but for the feeding of microbes. Their plan is to feed the rumen bacteria and let them feed the heifers.

The functioning of the cow's barrel-size fermentation vat which we call the rumen has been a prime object of study for a number of years. We know that in this first stomach of cattle, sheep, and other ruminants, the cellulose of hay and straw and corn cobs and other bulky roughages is converted into feed that the animal's true stomach can digest. This is done by the microscopic organisms that live in the rumen. These bacteria attack the fibrous, bulky cellulose and break it down. They also convert nitrogenous materials such as urea into digestible proteins. We know that there are many different kinds of these bacteria populating the rumen and that there are constant changes taking place in the numbers of each variety. We also know that before weaning, a calf is no more a ruminant than a pig—only after the rumen develops a bacterial population can it begin to function and change the calf into a roughage eater. These are some of the things we do know; a list of the things we would like to know but don't would fill a fat volume.

One of the outstanding workers in this search for new knowledge is Dr. Lorraine Gall, who left academic work in 1948 to carry out a research assignment for the National Dairy Products Corporation in the field of rumen functioning. For seven years, Dr. Gall worked on a very tough assignment—to find ways to speed up the transformation of calves into ruminants and to find ways to help cows do a better job of digesting poor roughage. Dr. Gall, whose work with Dr. Wise Burroughs in rumen digestion at Ohio State University helped lay the scientific background for the feeding of corn cobs and urea, had long been an advocate of feeding the bacteria to feed the cattle. Her line of research in this new assignment was to hunt for ways of encouraging the rapid multiplication of these helpful organisms.

After years of patient study and testing, Dr. Gall produced a feed additive consisting of certain of the trace minerals and predigested lactose and predigested milk proteins. Small quantities of this material fed daily to cattle, she found, increased the beneficial type of rumen bacteria a thousand-fold. When this material was fed to mature cattle, the increased bacteria did a better job of breaking down the tough fibrous material in poor quality forage and in increasing the digestibility of grains. The change was not sudden, for it takes time to build up a great, thriving population in the rumen. After a month of feeding the additive, however, the improved rumen activity was so great that pigs could not find enough grain in the manure to survive.

The effect of feeding the new material to calves is even more significant. Included with their milk replacer, the feed stimulates the growth in the rumen of a great colony of bacteria which are ready to take over and begin working on roughages when the calf is weaned. It has been found that calves fed this rumen bacteria stimulant do not suffer any slump or setback at weaning and, by eight months of age, are consuming about a third more roughage than calves which have not been fed the additive.

A window into the rumen of a steer permits Dr. Lorraine Gall entry into this fermentation vat. Her studies have shown that we can convert calves into roughage-eating ruminants at an earlier age, speeding up by four months their growth and development into mature animals. Some of these early maturing heifers, owned by Pooler and Dagger, are shown at left.

BREEDING

The most spectacular effect of feeding the new material has been that the growth rate was such that the heifers reached breeding size and physical maturity three to four months earlier than heifers raised in the conventional way.

Walter Hunnicutt, of Consolidated Products, a division of the National Dairy Products Corporation, was in on the original planning of the research which produced the bacteria feed and has followed it through the experimental testing and on-the-farm feeding. "We have produced a milk replacer feed that includes the new additive," Hunnicutt said, "and have worked out the best procedure for feeding it. This, naturally, applies to the dairy calf —we have a different approach to the feeding of the additive to beef animals.

"With the dairy calf," Hunnicutt continued, "we recommend it be left with the cow for the first three days to get all of the colostrum milk which is so vital to the calf's health. The colostrum is very nourishing and also contains the antibodies which protect the calf from disease during its early life. We follow this with our milk replacer feed just as milk is normally fed. A quarter pound of this dry feed mixed with warm water makes a quart of milk replacer. Along with this feed, right from the very start, we recommend keeping good quality hay for the calf to nibble on. The bacteria in her rumen are multiplying and they should be given some hay to work on.

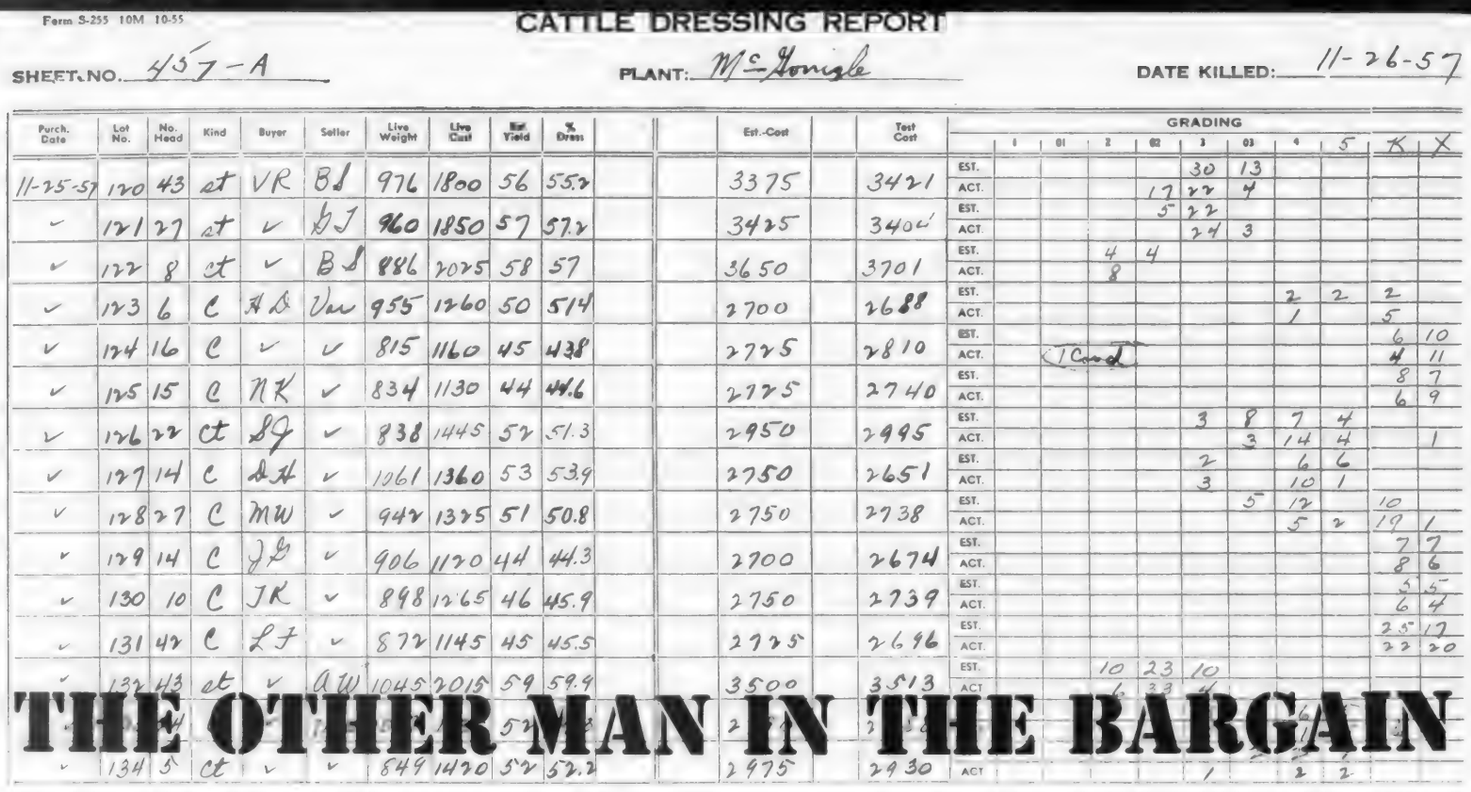
"At the end of the sixth week, we cut the calf off liquid feed and shift her to grain—equal parts by weight of ground shelled corn and oats. But we go right on feeding the rumen bacteria a pelleted form of the same feed without the milk replacer. This pelleted material is fed with the grain at the rate of a quarter of a pound a day. And here is the remarkable thing that we have found—and it proves to me that the calf has turned into a full-fledged ruminant. When the calf is taken off liquid feed and shifted to grain she goes right on growing and gaining weight without a set-back. Weaning is probably the most drastic feeding change in the animal's life and usually it is accompanied with a slump in growth, yet we have records of heifers gaining a pound to two pounds a day for the week after they were weaned.

"Here is the record on a bunch of calves we raised this way and sold to Carl Pooler and his tenant, Carl Dagger, at Urbana, Ohio," Hunnicutt continued. "These heifers weighed 132 pounds at six weeks of age when they were weaned and put on grain and pelleted rumen bacteria feed. One week later they averaged 143½ pounds and they went right on gaining weight without a set-back. We sold them to Pooler and Dagger when they were eight months old. At that time they weighed 494 pounds, or a gain of nearly two pounds a day during the period between weaning and the sale. This would have been unbelievable except for the fact that we had converted these calves into ruminants before they were weaned."

Since the feed additive which Dr. Gall produced was designed to feed the bacteria rather than the animal itself, it was naturally tried on mature cattle as well as calves. The results of feeding a quarter pound of the pellets daily have been to increase the roughage consumption of the cattle and to give greater digestibility to the grain they eat. This last is deduced by the very small amount of undigested grain that can be found in the manure—so small, as was mentioned, that pigs cannot follow cattle which are fed this material.

Though early maturity is probably more important to the dairyman than the beef raiser, they are both working with ruminants and are both interested in cheaper gains from roughage and better digestion of grains. "Our feeding program with beef is based, of course, on the fact

(*Continued on page* 116)



Form S-255 10M 10-55

CATTLE DRESSING REPORT

SHEET NO. 457-A PLANT: McDonogle DATE KILLED: 11-26-57

Purch. Date	Lot No.	No. Head	Kind	Buyer	Seller	Live Weight	Live Cost	Est. Yield	% Dress	Est.-Cost	Test Cost	GRADING	1	01	2	02	3	03	4	5	K	X
11-25-57	120	43	st	VR	BS	976	1800	56	55.2	3375	3421	EST.					30	13				
												ACT.				17	22	4				
✓	121	27	st	✓	DJ	960	1850	57	57.2	3425	3402	EST.				5	22					
												ACT.					24	3				
✓	122	8	ct	✓	BS	886	2075	58	57	3650	3701	EST.			4	4						
												ACT.			8							
✓	123	6	C	AD	Van	955	1260	50	51.4	2700	2688	EST.							2	2	2	
												ACT.							1		5	
✓	124	16	C	✓	✓	815	1160	45	43.8	2725	2810	EST.									6	10
												ACT.		1 Cond							4	11
✓	125	15	C	NK	✓	834	1130	44	44.6	2725	2740	EST.									8	7
												ACT.									6	9
✓	126	22	ct	SJ	✓	838	1445	52	51.3	2950	2995	EST.					3	8	7	4		
												ACT.						3	14	4		1
✓	127	14	C	DH	✓	1061	1360	53	53.9	2750	2651	EST.					2		6	6		
												ACT.					3		10	1		
✓	128	27	C	MW	✓	942	1375	51	50.8	2750	2738	EST.						5	17		10	
												ACT.							5	2	19	1
✓	129	14	C	JB	✓	906	1170	44	44.3	2700	2674	EST.									7	7
												ACT.									8	6
✓	130	10	C	JK	✓	898	1265	46	45.9	2750	2739	EST.									5	5
												ACT.									6	4
✓	131	42	C	LF	✓	872	1145	45	45.5	2725	2696	EST.									25	17
												ACT.									22	20
✓	132	43	ct	✓	AW	1045	2015	59	59.9	3500	3513	EST.			10	23	10					
												ACT.			6	33	4					
												EST.										
												ACT.										
✓	134	5	ct	✓	✓	849	1420	52	52.2	2975	2930	ACT.					1		2	2		

THE OTHER MAN IN THE BARGAIN

By Charles R. Koch

EVERY TIME someone gets up to tell how to improve the farmers' lot he never fails to point out that the farmer spends months growing his crops and finishing his livestock and then gives but little attention to marketing. Marketing, most observers will admit, is a science all to itself, a business for specialists. Yet the recent appearance of walkie-talkie-equipped buyers in the cattle alleys of the bigger stockyards has dramatically underscored the fact that the market is a most fluid, changing thing where knowledge is power. And if it's power for the buyer, it can be power for the farmer too.

The sight of these "space men" with antennae waving above their heads, receivers in their ears and microphones pinned on their coats has stirred up a lot of healthy inquiry among producers in regard to the market and the need for all this paraphernalia. "It makes a man feel downright unarmed," one farmer said as he watched his load of choice steers going to the scales. "I'd like to know what those fellows know and what they talk about. If I'm going to sit in on a hand with these boys I'd at least like to know how many cards are in the deck."

A farmer can never expect to know what the other players are holding, but he had better make sure he gets dealt the same number of cards as the rest of the gang. Strangely, a lot of livestock feeders seem to ignore these minimum precautions. To show what the buyers have up their collective sleeve, we present here a few glimpses into their activities. There is nothing mysterious about it, but the buyers do have at their command as many facts about the supply and demand situation as it is possible to marshall and they use these facts with the restraint of seasoned judgment. Knowing these facts may help the farmer trade a little more advantageously.

Tracy Hilton is a typical cattle buyer for one of the large packers on a big Midwest cattle market; let's say Omaha. In the words of his plant manager, "He's a prima donna. But he has a right to be the way he can size up the market and estimate weight and yield. A miss of a half of one per cent on yield is mighty embarrassing to a man like Tracy." He covers the cattle alleys on his steady-going bay gelding attended by a couple of adjutants who open gates and relay messages to parts and individuals out of contact with his walkie-talkie; and he directs the activities of a dozen or so assistants in widely scattered parts of the yards. Two hours before the market opens he and his assistants arrive at their office in the exchange building, a buyers' sanctuary separated by a considerable distance from the plant itself. Here the strategy for the day's operations is outlined. Hilton himself, or some of the others, may have walked through the alleys before coming up to the office to get an idea of the size of the day's run and the quality of the offerings. He picks up the phone and gets a briefing from the head beef man at the plant.

The beef man has been studying the "yellow sheet", a daily summary of the dressed meat market based on the sales of the previous day; he has his own company's figures on what is in the coolers and figures gathered from various sources on meat supplies all over the country, with particular emphasis on the areas where his company operates. The packer stands between two supply-and-demand situations and must be well informed on both. On the one hand the supply and demand for dressed meat, his stock in trade, is the prime factor in determining what he can get for his products. The supply and demand for livestock, on the other hand, determines what he is going to have to pay for the raw material. Both these situations are subject to daily and even hourly fluctuations. And the future prospects are quite as important as the present actualities. As in any business, it is that rare ability to appraise the future that in the long run makes the difference between success and failure.

The beef man may tell Hilton that the plant is going to need 200 choice steers today weighing 500 to 600 pounds dressed. From all the information he has at hand it looks like these carcasses will be worth 41 cents on the rail.

That puts the ball in Hilton's hands and he goes into action. He has an idea of what is in the yards, he looks over the Department of Agriculture's estimates of receipts at the leading markets all over the country; he calls buyers on these markets, some of them employed by his company, some of them independent order buyers, to get a first-hand account of what is on hand in their areas. If the runs are larger in Chicago or Sioux City, for example, than they are in Omaha, an order may be placed to buy some cattle on those markets rather than try to get them all locally.

Finally, he is ready to move. "USDA is estimating 9000 cattle here," he explains to his corps of assistants, " but you fellows have seen what's here. Two thousand of those are feeders, and there's a big run of she-stuff. A good many of the steers aren't going to suit us on weight and there is going to be a good demand for what does. Steve Bank up at Sioux City says they have a pretty good run of the

"The buyer needs a hundred eyes," says an old proverb. Unable to provide their men with additional senses, one of the big packers has supplied them with a mighty good substitute, the "horsie-talkie". Fred Haigler, a cattle buyer on the Chicago yards, uses one to check with his plant on the demand for choice heifer meat and the supplies in the cooler. If the word is right he may be able to use these blacks.

"Oh, What you just said!" A competitor eavesdrops on a bit of hot information with his pocket-sized transistor radio.

kind of stuff we're looking for up there, so I told him to buy 50 for us.

"That will leave us needing 150 to fill our order. You buy 50 of them over in your section, Ed, and you pick up 50, Tom, and I'll get the rest of them. We've got to buy them at 41 cents. (Buyers think in terms of dressed pieces and yield.)

"The rest of you fellows let us know if you see anything. You've got that order for those cows, haven't you, Randall? And you do the best you can on those bulls, Jim. That bull meat is getting mighty high. Maybe some of those other boys will pull out of the market and we can buy it right. And, Sid, you watch your step. . ." And it's off to the day's work in the alleys.

"We always do a better job of buying in the office than we do in the yards," Hilton admits. "We have a minimum number of cattle we are going to buy when we go out. If there is a light run and a lot of competition we have a hard time getting them bought right. If there is a fairly large run or maybe an outstanding bunch that the rest of the crowd has missed we might be able to pick up a few bargains. That is what makes the walkie-talkie so handy."

Until the advent of this new instrument the only means of communication between the corps of buyers in the yards and between the buyers and the plant was by messenger. Sometimes it might take as long as half an hour for the beef man at the plant to get a message to his head buyer that the dressed market in the east had taken a drop or that they needed another 25 head of cattle. Or one of the assistant buyers who might already have filled his part of the order might run across more of the same kind of cattle the head buyer was still needing. If he left the pen to tell Hilton, a competitor might get them. The walkie-talkie enables the buying corps to have instantaneous communication with each other.

Every invincible weapon sparks the development of a new impregnable defense. Such has been the case around the stockyards, too. The walkie-talkie outfits are heavy things to tote around all morning and their introduction cost quite a bit of money. It looked like they were the ultimate in intra-yard communication until one day shortly after they were put in operation a commissionman was seen with what looked like a hearing aid in his ear. Everyone knew his hearing was sharp as a robin listening for worms, so the question was inevitable, "Why the ear gadget?"

With a finger to his lips and a look on his face like Aunt Minnie on the party line he slyly pulled a hand-sized transistor radio from his coat pocket. "Those guys just admitted they're going to pay another quarter for steers this morning," he chuckled. He was tuned in on the buyer's wavelength.

The Mathematics of Price

The plant and the buyers, as was pointed out, always talk in terms of the dressed price for meat. This is related to the live price by a very simple formula. The flat dressed price equals the live price divided

CAST OF CHARACTERS

For those whose experience around the cattle alleys is limited we append this introduction to a few of the principals in this article.

THE PACKER is the company which buys livestock for slaughter. There are thousands of such plants throughout the country, some process all kinds of meat products, others specialize in only one or two kinds. The so-called Big Four of the industry are Armour and Company, Cudahy Packing Company, Swift and Company, and Wilson and Company.

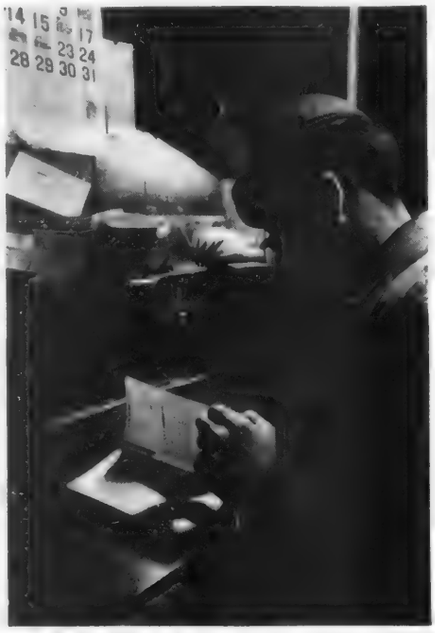
THE BUYER is the individual who purchases the livestock for the packer. He may be employed by the company on a full-time basis or he may be an order buyer who acts as agent for a number of different purchasers buying specified numbers and kinds of livestock on their order.

THE COMMISSIONMAN is the selling agent for the producer. While any producer has the right to take his livestock to any terminal public market and negotiate their sale himself, in practice almost all sell through well-established and experienced brokers or commissionmen who are well acquainted with the business. The commission charged is not a percentage of the valuation of the livestock but a fixed charge per head, varying with the number of head and class sold. For example, on one market the charge for a single steer is $1.35, but in lots of 30 or more the charge drops to $1 per head. The stockyard, too, collects a fee known as yardage for each animal that uses the facilities of the yard.

THE BEEF MAN in a large packing plant of many departments is the individual in charge of the beef department.

by the yield. By mathematical manipulation this makes the live price equal the dressed price times the yield. If the buyer is told to fill his order on a 41-cent basis and he is considering cattle which in his estimation will yield 60 per cent he can pay $24.60 a hundred for them. This is what makes the buyer's ability to estimate yields one of his most important skills. If he consistently misses his estimates by more than one half of one per cent he'll soon be a stranger to the cattle alleys.

As a check on their accuracy in this field the plant sends the buyers a daily "kill sheet," showing among other things, the buyer's estimate of the yield compared to the actual yield, and the final grade as compared to the buyer's estimate of the grade of each lot of cattle purchased the day before. A specimen of one of these sheets is used in connection with the title of this article on page 46. The amazing thing is the extreme accuracy of the yield estimate.



During the pre-dawn hours the drover waiting in his shack sees the first evidence of the size of the day's receipts. The commissionman (below) advises a client on the condition of the market.

Yields and Grade

Tracy Hilton tells what it takes to hit the bull's-eye in this department. "Grade, yield, and weight are the important points in buying. The yield is what we call the 'hot' weight less a certain shrink estimated by the plant," he begins. "It is figured after the hide has been taken off the carcass and the offal has been removed, just before the carcass goes into the cooler. Yield is easier to hit than grade because you don't know what is under that hide. The cattle may have been bruised—you always have to be suspicious of a load that includes a few horned cattle. Those horned son-of-a-guns will hook and bruise each other and everything else in the lot. The bruises ruin a carcass.

"Grubs are mean, too. A little bump is all you can see but the grub gets under there and eats the fat; and lice suck the blood and make a steer grade poorly. In the springtime cattle frequently pick up measles just as kids do, though in cattle the disease takes a different form. If the case isn't too bad, we are allowed to use the carcass after it has been frozen for ten days.

(Grubs, incidentally, are a million dollar a year parasite. There is as yet no completely effective control for them. A new systemic insecticide, Dow ET-57, looks promising. The more common control is rotenone applied in a dust, spray, dip, or wash. It takes organized community effort for a really effective grub eradication program.)

"Anasarca is one of the things we have to watch out for because the cattle will be condemned. This is a dropsycal condition—they get all puffy from an accumulation of fluid under the skin. It seems to be caused by a vitamin deficiency that comes from feeding old hay and corn.

"If you buy many cattle with these faults without making compensation for them or without protecting yourself by a conditional purchase you're going to turn up with a poor record.

"To get back to yields, the one thing you can never afford to do is to look at cattle with 'a big eye.' Don't overestimate. Yields will fluctuate from season to season. In the late fall and early winter, new crop cattle start coming to market—those that have been put in the lot late in the summer, given a short feed and sent to slaughter. They may have been running out all summer and just picked up a little grain. They won't yield nearly as well as the kind of stuff that comes in in late winter and spring and has had a good feed of corn.

"If the farmer comes to the yard with his cattle you always want to ask him how they have been handled and how long they have been on feed.

"Weather has a lot to do with yields, too; rain, a sudden cool spell, will set cattle back. You always discount a bunch that come in with a lot of mud on them.

"Just before a storm cattle will take on a storm fill. When you look at a bunch like that you say to yourself, 'After that snow last night I'd better be careful.' Maybe you'll put your dead price in at 38 cents instead of 40 and try to buy on that basis.

"They have another way of disappointing you, too, after a heavy snow. They won't eat and won't drink; they live on rib fat.

"A foundered steer, incidentally, will yield well because he won't drink much water."

The buyer practices his art like a barber honing his razor during lulls between customers. Buyers who work for one specific packer buy only for that packer, but there are in the trade order buyers, too, who buy on order for a number of different packers. They are more or less independent operators whose time is their own. When they find themselves with no orders in their pockets—though this is rare for a top operator—they roam the yards buying and trading for themselves. "To keep sharp at this game," one of them said recently, "you have to stay at it continually. You have to be ready to set a price on any batch of cattle and stick with it."

To which Hilton adds, "How can any

(*Continued on page* 154)

"This is only the beginning, little dogie!" It all starts with the roundup; then an expensive ride to the feedlot. Twelve months of high-priced corn-filled, antibiotic-and-hormone-fortified rations will leave the feeder with a depleted bank account. When those cattle are fat they had better go to a market where they will find buyers with the right kind of orders.

Sponge hunters are not confined to the male sex. Women, however, usually can take them or leave them. They keep their wits about them and regard morels as just another item on the grocery list.

Dry Land Spongers

by Art Conrad

Above is a toadstool type of mushroom which carries sudden death. It can not be confused with the morel (left) which looks like a hunk of sponge on a pale stem. Spongers are indifferent to the ordinary edible mushrooms, claiming they are impossible substitutes for the real thing.

THERE IS NO DOUBT whatever among dry land spongers that morel mushrooms, or "sponges" as they know them, are the food of the Gods. A mortal can be no nearer paradise, they say, than when he sits down in front of a plate of morels sauteed in butter. Morels are not only the greatest of all nature's delicacies, they are a sort of opiate, too, for they make congenital liars out of honest men, steal them from their marital beds, and send them, with bowed heads, wandering into the forests and fields.

A morel addict never recovers. When the apple trees show their first faint blush of pink, the fever comes on. An addict becomes restless, and one morning he disappears. He is a man possessed during the few short weeks when the morels are in fruit. Like the lotus eater, he forgets home and loved ones, his business suffers, and he lies like Ananias. He ventures on the annual safari with hope, anticipation, and no little guile; he returns by devious routes from his secret hunting grounds, suspecting spies; he appears among his fellows briefly to tell tall tales of his harvest. No fisherman can hold a candle to him.

He banishes his wife from the kitchen and cooks his feast himself; he shares it reluctantly. This cult of sponge hunters is as old as man. The Neanderthal was not the first. There were those before him, more primitive, for the morel is a primitive form, one of the simpler plants and it hasn't changed much since the dawn of time. The morels or morchella, as the botanists call them, are found throughout the country—there are several species all of which differ so greatly from all other mushrooms that identification is simple and safe. Unlike the toadstool, the umbrella type of mushroom, all species are edible. You do not have to gamble your life away in choosing between the edible and poisonous species.

Two common and preferred species of morchella are the *esculenta* and *delicosa*. Typical of the entire group, they look like a piece of sponge resting on a creamy white stem. The stem is hollow, and the cap is usually conical or rounded; the over-all height is rarely more than seven inches. The color varies, depending on specie, from a gray to buff or brown, and darkens with age.

The stem is rarely more than a third of the length of the entire mushroom except in a less desirable variety, the snake head, or *morchella semilibera*. In this variety, the stem is long and is topped by a small head shaped like a snake's. Its flavor is inferior. Both the stem and the body of all species are edible and are fairly equal in flavor.

The morel itself is the fruit or flower of the growth, by far the greatest bulk of which is below the surface. The flower or fruit emerges rather quickly when the conditions are right—some say they pop up in a moment and even emit an audible sound as they spring out of the earth.

(*Continued on page* 135)

SORGO KING

Sorgo Silage is the foundation of this Illinois cattle breeder's entire operation. With the yields he gets, one acre supports 50 cows for a month. It's an easy crop to handle, too

"JOHNNY APPLESEED was a fellow after my own heart. He found something good and just had to share it. That's the way I feel about sorgo. It has been doing a good job for me for a long time and I've talked a lot of my neighbors into using it. Maybe they'll be calling me Johnny Sorgo someday."

That's the way W. Wilson King, Illinois Angus breeder, sums up his enthusiasm for silage sorghum, sweet sorghum, or sorgo as it is called in some parts. He practices what he preaches, too. This spring found his farms just south of Rock Falls with five upright silos full of sorgo silage—still untouched—and two big trench silos, one of 300-ton, the other of 500-ton capacity, that had furnished the bulk of winter feed for his herd of 100 cows plus his bulls and young stock. The silage in the uprights will remain in good condition for years and is being held as a reserve against drouth or future crop failures.

King added a new and highly successful touch to his silage making last year, which he intends to expand upon this year. He tried a high-yielding variety from the south called Tracy, seeded 20 of the 45 acres he had in sorgo to it, and got an increase of 5 tons per acre over what he had been getting from his old standby, Atlas. Atlas had been giving him around 25 tons to the acre.

Most of the literature on Tracy warns against planting it too far north, too far north being defined as anywhere above the southern-most counties of Missouri. The variety was originated over 20 years ago at the Texas Agricultural Experiment Station at Chillicothe and was later distributed from Mississippi. While it has always been a tremendously heavy yielder its popularity has been hampered by its late maturity—estimated in some sections to be 2 to 3 weeks behind Atlas—and by the fact that until recently there were no forage cutters available which had the capacity to handle the kind of tonnage it turned out.

King had not read this literature, though, and being a vigorous, determined son of a Colorado homesteader, he probably wouldn't have been too discouraged by it if he had. He was looking for something which would produce a lot of good, palatable, nutritious feed for his herd and he was willing to take a few chances to get it. His experience proved that Tracy is later maturing than Atlas, but on his fields only 4 or 5 days later; and he had power enough with his big New Holland harvester and his diesel tractor to handle the crop without any trouble.

Did it lodge? Yes, but only a little more than did the Atlas, not enough to be serious. "Lodging is something a man has to learn to live with," King says, "if he wants big yields, at least until the plant breeders are able to come up with better stalks."

It is when King tries to put a cash value on his sorgo silage that he really begins to get excited about it. There are few farm commodities so hard to price as silage. It is rarely sold in the regular course of trade and when it does change hands there is usually something in the nature of a forced sale involved with either a landlord or an incoming tenant buying the remnants of the outgoing tenant's share of the crop in the silo. Current valuation ranges from $6 to $12 per ton. Wilson King uses $8 in his calculations and is probably about right. Morrison estimates that the feeding value of sorgo silage for beef cattle when fed along with alfalfa hay will be about 40 per cent of the value of the hay, about 50 per cent of the value of prairie hay. On this basis, if alfalfa hay is worth $20, the silage should be worth $8. At this rate a 30-ton-per-acre yield of silage would put $240 worth of product in the silo!

The King cows get 40 pounds of silage per day. One acre at this rate can carry a cow for 1,500 days or 50 cows for a month. At $8 per ton the cost of silage per cow per day is 16 cents. The

The Angus breeding herd on Kinglore Farms is housed in movable sheds, each 12x20 feet with an overhanging roof. The 12 foot width makes it easy to get them through gates. A few of them placed in a semi-circle in a field make a perfect windbreak and the activity of the cattle solves the problem of manure hauling.

silage is supplemented with 10 pounds of good alfalfa-brome hay per head and from the middle of December until the herd goes on new grass in the spring, 1 pound of vitamin-treated alfalfa meal is added to the silage for every 7 cows. This preparation contains 35,000 units of vitamin A and D to the pound. It is recommended that a cow should have 4,000 units of these vitamins per day, so the 35,000 units per 7 cows makes ample provision for this minimum. Aureomycin and dicalcium phosphate were also added to the mixture this past winter as a general conditioner and disease preventive.

"I got my tip-off on the need for adding vitamins to the silage years ago just by observing my cattle," King says. "As soon as they got on green grass in the spring, the calves lost their scours and the whole herd toned up and took on a good bloom. It was obvious that despite the high quality of the feed something was missing from their ration. A little checking led to the conclusion that the missing factor was the vitamins. Morrison's feeding tables, for example, show sorgo silage the lowest of any of the silages in vitamin A activity and in carotene, the source of vitamin A. So we started adding the vitamin mixture to the silage and have brought our herd through the winters in fine shape ever since."

The Illinois beefman likes to point out, too, how the use of high-yielding forage sorghums goes a long way toward destroying the alleged advantage that the western rancher has over the cornbelt producer in raising beef cattle. "What's that range land worth?" he asks. "Twenty dollars an acre? Thirty? Lets say it's worth twenty; but it takes twenty to twenty-five acres to carry a cow. That's a land investment of four hundred to five hundred dollars per cow. Back here, with forage yields like this, we can easily handle two cows to the acre, even more on land worth three hundred to four hundred per acre. What advantage is the cheap land? Or what is the disadvantage of our high priced land?"

It's As Easy As That

There is nothing about the cultivation and harvesting of a crop of sorgo silage to scare anyone away from it, according to King. The rotations on the 560 acres of Kinglore Farms are three years of corn, one year of oats and three years of alfalfa-brome. The sorgo may be substituted for one year of the corn, or, as on one of the fields, it may be planted continuously for a number of years.

Sorgo seems to like a pH of about 6 to 6.5. Liming to control soil acidity is usually done according to soil test before the oats and meadow seeding. The balance of the fertility program consists in plowing down 250 to 300 pounds of 10-10-20 before each corn or sorgo crop.

The sorgo goes in right after corn planting, usually late May or early June, and is planted in 40-inch rows. Seeding rate is 10 pounds to the acre for Atlas, 6 or 7 pounds for Tracy, which has a smaller seed than the Atlas. King's warning here is not to plant too deep. "The sorgo sprout is a tender little thing, more like timothy than like corn," he says, "so you don't want to put the seed down too deep. One inch is deep enough, probably a half inch is much better."

The fields get the usual corn cultivations, maybe a spraying with 2,4-D to get the weeds, and that's the story until cutting.

Immature sorgo is never as valuable as a well-ripened crop. The riper it gets the smaller amount it takes to furnish a good meal for a cow and the more palatable it seems to be. "We found this out one year when we fed some of it green," King says. "It took a lot more of the green stuff to keep the herd in shape than it does when you are feeding the well-ripened, well-cured stuff out of the silo."

The books say that the time to start cutting is after the grain gets doughy and begins to harden. King has another indicator: "When you can rub your finger down the stalk and get some powdered sugar residue, that's the time to cut," he says.

Another guide is to twist a stalk with the hands; if just a little juice becomes visible on the stalk the crop is mature enough to go into action. It should never be cut when it is green and sappy.

In filling the silos King uses no preservatives. And the way he

(*Continued on page* 101)

W. Wilson King explains the fine points of high quality sorgo silage to Future Farmer son, David. King tried Tracy sorgo for the first time last year, got a yield of 30 tons per acre.

The sorgo silage which hired-man, Gunnard Hollquist, forks from the trench will be fortified with vitamins A and D. Each 80 rod row (below) produced three tons of silage.

"SOW IT ALL"

Can a man with 12,000 acres of wheat land and more than $150,000 in equipment afford to comply with acreage allotments? "No," says Montanan Hank Kolstad

CAN A WHEAT FARMER be too big for the soil bank, acreage quotas, price supports? Are these government restrictions and regulations valid for the big fellow as well as for the little operator? Some big wheat growers of Montana have found that planting it all, ignoring the restrictions, paying the penalty, brings them more profits. Henry Kolstad is one who plants it all and comes out ahead.

Liberty County, Montana, is long, narrow, dry and treeless. For the most part, it is a flat piece of real estate, extending from the Canadian line for about 60 miles into the sovereign territory of the United States. The main line of the Great Northern Railway cuts the county about in half, the part north of the tracks being spring wheat country, that south of the right of way growing winter wheat. In the lower part of the county the traveler comes upon a completely unexpected scenic attraction, the Tiber Reservoir, a huge, blue lake produced by impounding the upper reaches of the Marias River behind a dam which the local residents modestly refer to as "the world's largest earth fill." This is only one of the superlatives in the county.

Close by this lake lies the 22,000-acre Kolstad Farm, a place of no unusual proportions in this land of semi-arid vastness where the average farm is close to 3,000 acres and government experts estimate that it takes a minimum of 1,200 to 1,400 acres of crop land to make an economic unit. But this "south" place is only one segment of the domain of that operator extraordinary, Hank Kolstad, who also has a 5,500-acre place on the north side of the river, 1,480 acres in neighboring Choteau County, and 80,000 acres of range and crop land, including 3,500 acres of irrigated meadow, in Valley County, almost 200 miles to the east. He runs a tractor and implement agency in Chester, the county seat, and has a big grain elevator at Lothair, a few miles to the west along the Great Northern tracks.

Kolstad doesn't mind characterizing himself as "the meanest SOB this side of the Rocky Mountains" when he's in a corner. But when the chips are down, he gets his biggest thrill playing Santa Claus for the kids of Chester every Christmas, a role for which he has a natural build. He is a tough, hard-driving survivor of the homesteading days of the second decade of this century. Those were the days when railroader Jim Hill's dreams of empire combined with the government's ill-conceived land policies to lure thousands of emigrants to this section of "The Great American Desert " to settle on undersized and uneconomic farming units. The government, it was said, was willing to bet title to 320 acres against the homesteader's filing fee that he would starve to death before proving up, and the government usually won. But not against the Kolstads.

Hank's father, a North Dakota farmer of Norwegian descent, came to Liberty County in 1910 and filed claim on a quarter section for himself with another quarter in his wife's name. Hank stayed with his grandparents back in Dakota for two years, then joined the family in the 12x18 homesteader's shack when he was 10.

It took three years to prove a claim. Most of the homesteaders came about 1912. After they proved their claim they could mortgage it. Most of those who lasted that long did, and moved out. The Kolstads stayed and started adding land to their holdings. The 5,500-acre piece on the north of the river, now farmed by Hank's son-in-law, Bill Fraser, is built around the nucleus of the original Kolstad half section. The other pieces Hank picked up as opportunity presented itself.

Against a backdrop of shovel drills and duckfoot plows tied together in hitches up to 84 feet in width, Hank Kolstad (in cap) goes over the day's work with son Allen as the latter backs a big crawler up to a 60-foot spread of Noble blades. This is just a fraction of the equipment it takes to handle 6000 acres of wheat and another 6000 acres of fallow land.

Opportunity generally meant drouth, grasshoppers, depression and other circumstances usually labeled calamity. As Kolstad says, "There have been times when you could buy land out here for 50 cents an acre—if you could scrape together the 50 cents."

Topography and climate combine in this country to make it a land that cries for large-scale farming. It is also a region where the scale of operations and the hazards involved in raising a crop often make a mockery of restrictive governmental programs. Hank Kolstad is one of the biggest of the big and the story of his operations is a dramatic picture of modern large-scale agriculture.

The Kolstads have a son, Allen, and four daughters. Two of the daughters are married and sons-in-law Bill Fraser and Cliff Lingen each are in charge of one of the farms. Fraser is on the 5,500-acre home place from whence he can take off in his Cessna to rush a part for a broken-down combine down to Lingen's place in Choteau County, help spot strays during the roundup on the big "south" place presided over by young Allen Kolstad, or fly in help to lend a hand at hay time on the Valley County ranch.

Hank, himself, dashes from place to place in his big, two-way radio equipped Oldsmobile. Dodging chuck holes as he approaches Tiber dam at a 75-mile-an-hour clip he suddenly reaches over to the dashboard and grabs the microphone. "Car one calling 207 . . . 207 . . . come in 207."

"This is 207."

"There's a flatbed leaving down at Allen's going over to Valley. Anything you want to send along from the store?"

"Don't think so, but I'll check and see. Vern says to remind you about that meeting at the bank at two."

"I'll be there. Roger and out."

A few minutes later the speaker begins to squawk: "Car four calling car one . . . car four calling car one."

"This is car one, come in."

"We're down here along the breaks and we're about out of gas. Have somebody bring some gas down from Allen's for us."

"OK, I'll bring it myself. I was coming down to see how you boys were getting along with that fence, but I was going to stop by to give the kids their 'prize' first."

The Kolstad grandchildren always get a treat whenever grandpa Hank drops by.

Wheat is the big wheel of the Kolstad fortune. The elevator and the implement store are mere sidelines, though intimately related to the wheat operation and almost demanded by its size. The elevator, naturally, grew out of the need to acquire more control over the disposal of the harvested crop. The implement business, according to Hank, also filled the need for something to do during the slack season. "We moved into town in 1942," he says, "so the children could go to high school. I had to have something to do during the winter, so I bought the John Deere dealership." A dealership is a mighty good way to whip the farmer's old problem of buying at retail, too.

It is easy to see how a man who farms on this scale not only finds little need for government assistance, but is inclined to shout like the rookie retreating from Bull Run, "Get out of the way for a man who can run!"

His total cultivatable land adds up as follows:

Kolstad Farm (Allen's place)	12,000	acres
Bill Fraser Farm	5,000	"
Lingen Farm	1,480	"
Valley County Ranch	2,000	"
Total	20,480	"

This being dry farming country where half the crop land is left in summer fallow every year to conserve moisture for the next crop, roughly 10,000 acres of wheat or barley are the normal Kolstad production.

The cropland on the Valley County place was sown to Durum wheat and flax last year. The 1957 wheat allotments for the other three places were:

Kolstad Farm	3,076	acres
Fraser Farm	2,298	"
Lingen Farm	400	"
Total	5,774	"

This was just too restrictive for a man of Hank Kolstad's proportions. Take the south place, alone. Allen has over $150,000 tied up in equipment there and storage space for 160,000 bushels of wheat. According to the county Agricultural Stabilization and Conservation committee the normal yield on this place is 13 bushels to the acre. In a good year it can easily double that yield and even 30 bushels is not uncommon. Kolstad had the choice of staying within the allotment and either letting his excess acres remain in fallow or sowing them to barley, a crop he holds in low esteem, not only because of its unattractive price but because it is hard to combine; or he could shoot the works and overseed.

Allen Kolstad makes an adjustment on one of the eight big John Deere wheel-type tractors which are part of the power package on his place. The building in the background is a granary with a 60,000-bushel capacity.

If he stayed within the allotment he could sell his grain and get the full government support price, around $2.05. If he overseeded he would lose the support on the entire crop. He could sell on the open market, but that part of his crop equal to his normal yield times his overseeded acres would be classified as "hot" wheat and subject to a penalty of $1.12 per bushel. (In some cases the entire yield from the overseeded acres is considered "hot" wheat.) He could sell this "hot" wheat at harvest and pay the penalty, or he could store it, post a bond for the amount of the penalty and if his crop this coming year should fall below his quota (normal yield times allotment), a distinct possibility in that dry country, he could sell this "hot" wheat without penalty as part of his new quota. There was another possibility, too. If he seeded the works and his actual yield was less than his quota (39,998 bushels on Allen's place) he could dispose of it all without penalty. This last is what the growers refer to as the "Christmas" amendment designed to bail them out in case of crop failure.

Key item in Kolstad's tillage practices is the Noble blade. This big subsoiler with its six-foot blade has displaced the plow in his operations. It is pulled along four to six inches below the surface for the first cultivation, cutting weed roots and opening up the soil.

Having plenty of storage space, Kolstad, like most other big growers in a similar position, looks upon "hot" wheat as insurance. "A man would be a fool if he didn't overseed," is his attitude. So he put the works in wheat—9,100 acres on three farms.

Here's the way it balances out in some pretty simple arithmetic. Since the normal yields vary from farm to farm it will be best to use just one of the farms, Allen's, as an example.

Wheat out in that Montana country brings a premium for protein content. This may run anywhere from 12 to 18 per cent and bring a premium of from 6 to 34 cents per bushel. However, protein content usually runs in inverse ratio to weight so the higher yielding wheat (weight-wise) is usually of lower protein content and vice versa, and whatever premium the lighter weight wheat might command for protein may be counterbalanced to a considerable extent by the discounts for weight. So, for the sake of example, it is safe to use a figure of $2.05 per bushel for the crop. A crop of 76,900 bushels (3,076 acres times the actual yield of 25 acres) at this price would bring $157,645. That would be the maximum Kolstad and his son Allen could get if they stayed within the allotment on the south place.

Unsupported wheat in northern Montana this past winter was bringing around $1.80—a price admittedly higher than would have been the case without the protection afforded the supported part of the crop. After sowing a total of 6,000 acres (of which 2,924 acres were overseeded) Kolstad got a yield of 25 bushels per acre for a total of 150,000 bushels on Allen's place. Of this 38,012 bushels (2,924 acres times the normal yield of 13 bushels) were "hot" wheat which could net only the difference between the market price ($1.80) and the penalty ($1.12) or approximately 68 cents per bushel for a total of $25,848. The remaining 111,988 bushels he could sell at the market price, realizing $201,578. Total receipts $227,426. Obviously, this was a better deal than staying within the allotment, particularly when, as we shall see later, his costs ran about $20 per acre and because of his large fixed investment would have been higher with reduced acreage.

Using this cost figure he ran up a total bill of some $120,000 on 6,000 acres, leaving a net of $107,426. Even if he could have held his costs to $20 an acre on the 3,076 acres of allotment his expenses would have been $61,520 and his net only $96,125.

Actually, he did not dump the "hot" wheat on the market. He held it on the farm, posting a bond in the amount of the penalty. If dry weather, hail, grass-

(*Continued on page* 160)

The Family Cow

By Ben Brown

THE FAMILY COW, that foster mother of America, where has she gone? Countless farm and small-town youth were disciplined and trained for the tasks of the world by the family cow, and the nation is the poorer for her passing. Like the old soldier, she did not die, but passed slowly into limbo to emerge as a sleek animal with a herd number and a long and distinguished pedigree. Today she is attended by technicians in spotless white coats and has become a milk factory with no personality and no function except to produce milk high in fat and large in quantity.

The family cow, as she was known down through the years, was a symbol of family life, the hub around which the little world of the small town and the farm revolved. Those of us who cared for her, and subjected ourselves to the iron discipline of milking and feeding her and bedding her twice a day, 365 days a year, know that we got something from her besides the milk and butter and curds that came from her free-flowing udder. The family cow made men out of small boys.

We undoubtedly have a better milk supply as a result of the family cow's demise, and we have a sounder and more efficient dairy economy. But there was something about the family cow that made up for her lack of high production.

When Bossy went, she went quickly. I milked a family cow and I'm not an old man, but it appears I may well have milked a family cow about as recently as any family cow milker, because between the time I sold my herd and went away to school and the day I returned from World War II the family cow faded away.

When my family moved to a small town south of Des Moines in the early thirties our family cow provided a family of five with all the milk we could drink, and we drank a great deal. We had a little bench-

type separator and Mother made cottage cheese and creamed it and we ate this by the ton, mixed with grape jelly.

From the cream we made butter, and we used plenty of that. Father had all the buttermilk he wanted, and he loved the stuff. When my herd was at full strength—3 milkers, 3 resters, and a calf—I sold raw milk in gallon buckets on a nice little route. I delivered every day on a bicycle, hanging the little covered buckets on my handlebars. It was legal, it was profitable, and some of the time it was fun.

But Bossy's contribution in dollars and cents is not what I miss, although she made a very real contribution, at two-bits a gallon, to my high school and college expenses. It is the friendship of the cows themselves, the management practices (some strange, indeed) through which farm animals were adapted to small-town living, and the way in which daily chores contributed to the growing up of boys, that come to my mind when I think of the days of Molly, Polly and Sue.

All of our cows were characters. I've talked to other ex-family cow people and all of their cows were characters, too.

We probably had a dozen cows from the time we bought Molly for $18 at a community sale until I sold the noble Frieda to pay my first year's college tuition. Yet, I can remember every cow by name, what we fed to each one, how much milk they gave, how many calves they had and when, and the sex of each of these and their names. Everything around our place had a name, even the turtle that lived in a hole under the kitchen.

I can remember winging home from school after Mother called the principal to report that Susie had broken down the fence around our little lot and eaten Mrs. McClellan's grapes. Not just once—often. That was why we finally sold her at the community sale.

Then we got Dolly. Dolly calved a month early and I found her bull calf lying in the cold mud. He was worth $1.50 for veal and nothing whatsoever for any other purpose. Still, it was a victory when he revived under the stove in the kitchen.

But Molly, perhaps because she was my first venture, was always my first love in spite of her wanderings. She was a rangy beast, covered all over with red hair, and she had a great voice, clarion-clear, full-throated, with fine tone and character. She bellowed at the slightest provocation. She was big-teated and easy to milk and to a growing boy that was important. It was only at the pail that she fell short of perfection. She gave about a quart a day with great difficulty. Perhaps it was because she had her mind on other things.

I thought the world of Molly but Father thought differently. We traded her for a smaller, more settled type, with less voice and smaller teats and greater power of production.

Bessie cost $24. She was a true brindle. There are a good many man-and-boy farmers today who have never seen a truly brindle cow. Bessie was one of these, striped like a tabby cat.

We bought Bessie at the same sale where we sold Susie down the river. I left Susie in a cold, muddy alley at the sale barns. As I left, leading Bessie, Susie's lonely honking near broke my heart.

Bessie and I became great friends, but she didn't last more than a year. She had stomach trouble and an itchy skin and a high molar and had to go the way of all cows with such deficiencies.

I was fifteen when I took Bessie to the sale—alone this time. When we came into view, a scalper promptly struck up a conversation. Seeing Bess at the end of the rope, he offered me thirty dollars as she stood.

This seemed a fair price, but I knew that scalpers made a good living matching their optimism against other people's pessimism by buying for a price ahead of an auction and consigning the animal themselves.

I turned him down. That afternoon Bess brought thirty-three dollars. When the sales commission was deducted there was thirty dollars and eighty-four cents on the check. Father gave me the eighty-four cents.

Our next animal was Polly. Like Molly, she broke out all the time. We sold her for beef and got Frieda.

Frieda's acquisition marked a new peak in our cow business. All through the Susie-Polly-Bessie-Molly era, we'd dreamed of some day having a really good cow. Near town was a dairyman with an excellent herd. We'd visited there often. He announced a dispersal of his herd and I wasted no time in getting out to his place. Frieda was a standout—four-year-old, well built, of good mixed blood, and fresh.

The dairyman wouldn't sell her ahead of the sale—she'd been advertised and he said it wouldn't be honest. But he did do one thing—he promised me he'd sell her first, and at that kind of sale big buyers frequently didn't get warmed up until well after the sale had started.

I had $85 in the bank and drew a cashier's check for all of it. When the bidding opened I started boldly.

Bidding went to $80 all too quickly. This was to have been my limit, for trucking her home would cost $4 and I wanted some lunch. But we soon passed the $80 mark—in 50-cent and finally 25-cent bids—and I kept going. Unbelievably she was stuck off to me at $84.25. We walked home—four miles, in the dark, with rebellious Frieda on the end of a rope.

Later on, there was Alice, whom I raised from a calf, and Alice's second calf, and Cynthia, the one who wouldn't eat alfalfa. And later still, I bought Frieda's daughter, Flossie, from the man who had bought her at the dispersal sale when she was a calf. They made a great family.

Roughage, not grain, was the biggest feeding problem in the handling of a town cow. Each fall I cut sweet corn fodder from every garden in our end of town and carted it home on a coaster wagon. You can get a whole shock of sweet corn fodder on a wagon if you tie it on right.

It was a big treat for the cows, but it was a back-breaking job to clean up. Stalks stick to your fork and get soggy and you can't scoop 'em or pitch 'em or do anything but pick 'em up one by one and throw them out on the pile.

(*Continued on page* 130)

Generations of small boys have wondered why, at milking time, the cows were always at the farthest corner of the pasture. But once started along the worn path toward the barn, they went willingly enough, and the boy had time for a brief dream.

By Dana C. Jennings

DRYING
In Storage or *For Storage*

With a dryer you can reduce field loss, then move in any direction—to storage with no spoilage—or to market to hit the top price

LAST FALL IT HAPPENED! In early December more corn, soybeans, sorghum grain, and peanuts were in the field than any time in the memory of young farmers. Old-timers had to thumb through the pages of their memory to find a fall that even came close to being as wet.

When you talked to farmers who dried their grain, you got a two-word answer, "It pays." For those who didn't have drying facilities at hand the question wasn't whether they were going to have them, come the fall of '58, rather, "Am I going to dry *in storage*, or *for storage?*"

So let's take a look at both sides of the street you're going to be traveling if you are buying a dryer this year.

If You Use a Dryer

If you want to hit the high early market before the new crop forces prices down, you've got to dry fast. Your drying equipment has to equal the capacity of your combine and/or picker-sheller.

If you're going to keep the grain to feed, or to seal, or to sell when the price is right, you have more time. Speed in drying, like speed in anything costs money.

For a fast-working batch dryer that will pace your harvester you'll pay anywhere from $2,000 to $5,000 plus 2 cents to 4 cents a bushel for fuel. For a grain conditioner that will handle a bin over days or weeks, then can be moved to another bin, you can get by for about $600, and a total operating cost of 2¼ to 3 cents a bushel to take 23 to 25 per cent corn down to 12 to 13 per cent. Either way, if the equipment fits your needs, you're ahead.

The thing you hear most about in talking to farmers who have dried grain—over and above hard-cash profits—is that you can harvest when *you* are ready. Corn and grain are fully grown and mature with about 30 per cent moisture content. Corn pickers and combines work best at 25 to 28 per cent. Grain combines do a good job high in the 20's. But such moist grain will spoil fast in the bin.

If You Don't

So you wait for nature to dry it on the stalk. Winds shatter. Storms flatten. Borers break the stalks. Insects and varmints stuff their bottomless stomachs. Corn pickers drop more in the field as moisture content falls. You end up picking corn in a blizzard. With drying equipment, though, you are truly the boss of the harvest.

With drying equipment you can start earlier in the season, earlier in the day. You can work long after your neighbors have quit for supper. Four hours extra harvesting a day puts you 'way ahead.

When you take time by the forelock and harvest your fully-matured but still wet grain early, you eliminate a definite number of risks. Farmers have found that reduced field loss alone can pay for drying. Higher quality gets higher prices. Early markets pay higher prices. Corn and grain dry enough to bin gets a higher price. The average difference between high and low markets is 26 cents for corn, 23 cents for wheat, 50 cents for soybeans. The lows come during the harvest glut; the highs just before harvest.

You can actually upgrade grain. You can pocket the 3 cents a bushel dockage

Earl Hansen (left) takes a moisture test on his drying corn, on his farm near Fairfield, Nebraska. Warren and Quentin Carnahan (right) of Stockdale, Kansas, used their wagon dryer last fall to dry milo. It brought 50c/cwt. premium. Their rig dried 90 cwt. an hour plus 15 minutes for cooling, burned 5 gallons of fuel oil and 3 gallons of tractor gas.

on corn over 15½ per cent moisture. One farmer bought 352 bushels of 24 per cent moisture corn at $1.09 or $383.68. He dried 32 bushels of water out of it, sold 320 bushels of dry corn at $1.40, or $448, making a gross profit of $64.32. After subtracting his $5.06 drying cost he had $59.26 left. Same corn, less water.

It has been calculated that if drying equipment is even a short haul away, you need but 2,000 bushels to break even on your own drying equipment. If you haul several miles to a custom dryer, you'll show a profit on drying less than 2,000 bushels. As one farmer in Nebraska put it, "A grain dryer is like a lock on the henhouse; if you need one and ain't got one, you're paying for it anyhow!"

If you want to catch that early, high market you need a fast dryer that will pace your harvester. You need a high-speed heated-air batch dryer.

If, on the other hand, you plan to hold your grain for selling when you're good and ready, to feed, or to seal, you can use much lower-priced equipment that conditions your grain over a period of weeks. With commercial storage plugged and Uncle Sam willing to pay you in the neighborhood of 15 cents a bushel to store it yourself, on-farm storage will pay you well. But when you store it yourself you become responsible for spoilage. That's where economy-priced, low cost grain conditioners come in.

Early harvest lets you cut field losses; make room for a winter seeding; enjoy more pleasant working weather; get a higher price on the market; take off for a winter vacation. By drying the crop yourself you can pay yourself the profits other people make by doing it for you. And there's real profit opportunity in custom-drying for neighbors. Farm-type batch dryers now work so fast, effectively and cheaply that you see elevators using them.

The USDA has established the following moisture content percentages for safe storage: wheat 13 per cent, oats 13 per cent, barley 12 per cent, grain sorghums 12 per cent, shelled corn 13 per cent, soybeans 11 per cent, rice 13 per cent. For prolonged storage, for seed stock, and in the southern states, grain should be 1 to 2 per cent lower.

Kinds of Dryers

Grain dryers come in four general types: (1) Natural air drying; (2) Heated air drying, of which there are two methods, (a) batch drying, or stationary grain type, and (b) continuous flow or recirculating grain type; (3) Bin drying with supplemental heat added; (4) Aeration, which is a method of conditioning applied to dry, storable grain for maintenance and control purposes only.

There's a lot of drying power in natural air. Ask your wife why she hangs wet clothes on the line. She'll tip you off, however, that clothes left out too late in the day re-absorb moisture.

To overcome this difficulty and to speed the whole process the hot-air clothes dryer was developed. Adding heat to the air gives it more drying power.

The ability of air to soak up water depends upon its temperature and relative humidity. Take saturated (100 per cent relative humidity) air at 40 degrees, heat it to 70 degrees, and the relative humidity drops to about 35 per cent, even though it still contains as much water as it did before. When its relative humidity drops to that figure you know it can pick up a lot more moisture before it is saturated.

When you want to dry your shoes fast you park them under the stove. The hot air can carry a lot of moisture and it picks it up right out of your shoes. But get them too hot, and they're damaged.

Same with grain. Heated air takes water out of grain faster than the same air unheated. But don't get it too hot. Maximum permissible temperature for seed corn is 110 degrees F., milling corn 130, feed corn 180. Note that these are grain temperatures, not air temperatures. Air at 180 degrees heats 25 per cent moisture grain only to 105 degrees, because of the cooling effect of evaporation. As the grain dries, its temperature rises closer to that of the air.

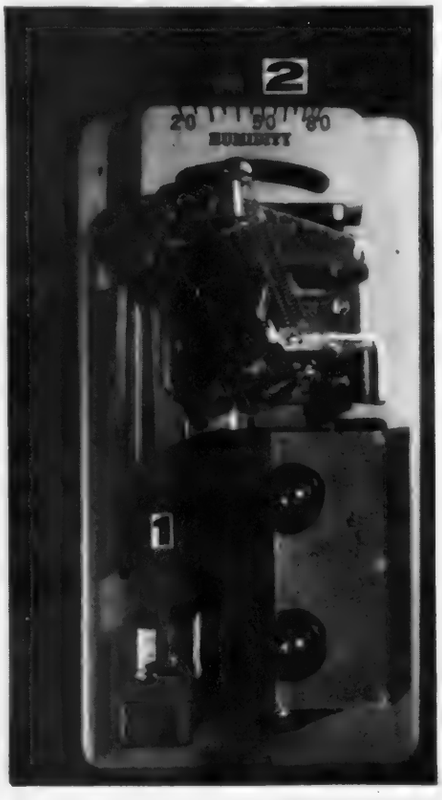
Natural, unheated air will dry your grain if given enough time. But you have to be careful; unheated air can actually put moisture back into your grain when the relative humidity rises toward evening or on a damp day.

So, if you can take plenty of time to dry your grain, all you need is a blower if the air in your neck of the woods isn't too damp too often, if you don't have long rainy spells.

It takes roughly 1,000 BTU to evaporate 1 pound of water. When you evaporate 75 pounds of water in an hour, you've used enough heat to warm the average home for an hour.

Under average conditions, an automatically controlled drying-in-storage system will dry 1 or 1000 bushels of shelled corn in 8 days providing that a minimum

This is a recirculating batch dryer at work on a Nebraska farm. Augers pull the grain out of the bottom of the machine, an elevator lifts it back to the top, where it is distributed by the conveyor on top. The grain circulates about 7 times in the drying operation.



The humidistat (left) is the brain of the in-storage conditioning system. The strands of hairs (1) are the sensing element that measures the humidity of the outside air being blown into the bins. The setting (2) is adjustable; usually the figure is 55 per cent. When the outside air goes over this figure the humidistat calls for heat, and gets it by turning on the electric current that starts wheels turning. The two bins (below) on the farm of Burleigh Grimes at Trenton, Missouri, use this set-up.

An impressive outlay of two batch dryers on the Emil Dalluge farm near Fairfield, Nebraska. Both of the dryers are fired with natural gas. Conveyors carry the grain to the elevator which lifts the grain up and dumps it in the bins. There are no strained backs as a by-product of this grain operation.

air flow rate of at least 5 cfm/ bu (5 cubic feet of air per minute per bushel) is provided and there is available heat for a rise of 18 degrees when it is necessary.

Recirculating Dryers

The recirculating designs keep the grain flowing out the bottom, elevating to the top, sprinkling back on top of the batch. Motion is so slow in the drying chamber it's like the minute hand of a clock. You can't see it move but if you look now and look five minutes later you can see that it has moved. It makes about four trips.

The arguments are that recirculating dryers give: (1) more uniform drying through constant movement of the grain, breaking up of "wet spots" and "trash pockets" before grain is dry, therefore obtaining a uniform blending of the grain; (2) faster drying due to lower static pressure encountered by the drying air stream, therefore discharging more air per fan horsepower through the grain; (3) more economical drying because grain is dried uniformly—no need to over-dry part of the grain to obtain a safe moisture level; (4) lower grain temperature at a given air temperature, as the same grain is not constantly exposed to the area of highest air temperature. This is very important as the grain temperature is the critical factor.

The builders of non-recirculating dryers take a dim view of all this fuss and agitation of the grain. They counter by saying that moving the grain in and out of the dryer four times: (1) wears the grain out—breaks off germs, cracks coats; (2) uses power that the non-recirculating machine uses to push more air through the grain for faster drying; (3) requires a lot of expensive grain-conveying machinery; (4) wears out the conveying equipment four times faster; (5) wastes heat in cooling and reheating the grain four times.

As for overheating the grain, they point out they have automatic controls to prevent it. As for over-drying, they say that an average degree of dryness is all you need. The grain gets thoroughly mixed in moving from dryer to storage; the over-dry kernels will take up moisture from intermixed still-moist kernels and in a few days you've uniform dryness throughout.

Portable Batch Dryers

Most of the dryers we have been talking about are portable. They are all cut from somewhat the same piece of steel, differing mostly in details and refinements. Most of them consist of a 2 or 4-wheel trailer on which is mounted a double-walled bin. The perforated steel walls are 15 to 19 inches apart, holding a blanket of grain around an air (plenum) chamber fed hot air by a fan. On the larger sizes the fan is driven off the PTO of a 2 to 4-plow tractor. On the smaller ones, an electric motor handles the fan.

You run the trailer into position and

(*Continued on page* 109)

E=MC²
1950 AD
The great soybean breakthrough
3,000,000 BC
2140 AD

By Grant Cannon

The Last Farmer

a testament

Every census records fewer farmers. Obviously they will follow the Indian and the buffalo into oblivion. Here are the musings of the last survivor

THIS IS GOOD-BYE. Soon it will all be over and they will speak of the farmer along with the dodo, the passenger pigeon, and the giant ground sloth. Now that the end is near, I feel the need to leave some sign of my passing—if only this goodbye.

For many, many years I and my fathers before me have lived here on this preserve, The Farmer's Refuge, so that modern man who long ago outgrew the need for farmers, could see what a primitive was like, and how he lived. The Preserve Committee felt that the farm was a link between the 22nd century culture and what they called the production-for-subsistence life of earlier man. I believe that they intended to continue supporting this farm as an educational institution forever. I thought that I should live out my life here and see my son take over—until that terrible moment this afternoon.

As soon as I saw the headline, I felt as though I had heard the voice of doom. LAST FARMER TO GO, it said.

I had seen stories about me in the paper before, but they had almost always been in the feature section. Once, back in June, 2133, there had been a front-page story on my marriage, but that was a pretty story. The headlines had read, STATE MATES OUR FARMER, and the story had started, "Heigh ho the derry oh, our farmer takes a wife. . . ." But most of the stories, as I say, had been picture features showing what a farmer looked like and how I practiced the lost art of planting. I clipped all these stories for my scrapbook. Never, had there been anything terrifying like this story, LAST FARMER TO GO.

The Farmer Wardens had tried to keep it from me. I know that they did it out of kindness—and I am grateful for their compassion—but I was bound to learn about it sooner or later.

I was cleaning up after a picnic when I found out. You see, they let folks picnic here so that they will leave bottles and cans and papers around. The scientists feel that it may be necessary for my survival since all of my ancestors have cleaned up after picnics as far back as there is any record of farmers as a group.

Well, as I say, I read of my doom in a paper left in the picnic mess. It was a terrible shock. At first, all I could do was to sit and stare at the headline trying to adjust myself to the stunning news. There was a long article below, but I couldn't bring myself to read it just then. I put the paper in my pocket and hurried back to do the milking. There was a much larger audience this evening and I remembered that for several days I had been dimly conscious of the increased size of the crowd. They all looked sad, I thought, and I'm sure that I even saw one dab at her eyes.

Performing with the cows always has a calming effect on me. After it was over, I sat down quietly and read the whole article. Not only did it tell of my end, but it gave a fairly complete history of farmers. I can see now that extinction was inevitable. And I know now why father couldn't bring himself to tell me the whole story of our past.

Father *had* told me quite a bit of our history; of how, back in the dim past, most men had been farmers. I recall exactly how he said that, as though he expected to be contradicted and knew that he couldn't prove such a ridiculous statement. He repeated it angrily, "Most men were farmers in those days," and pounded the table with his fist. He also told me that centuries ago, sometime between the first fumbling attempts to harness the atom and the beginning of intersteller flight, man became aware that the farmer was disappearing. All of this was told in greater detail in the newspaper article.

The article also gave many facts that either I had never heard or had forgotten. For example, it said that as early as the middle of the 20th century, men were begining to predict the end of the farmer.

At that time, their forecasting efforts were based on the simplest form of arithmetic. They knew that in 1920 there had been 6,448.343 farms each averaging 148 acres, making a total of 954,355,000 acres of land in agriculture. They also knew that by 1950 there were only 5,382,162 farms, but each had grown to an average size of 215 acres which made a total of 1,157,165,000 acres of agricultural land.

In working with these figures, one fellow, Blackenschultz by name, made the first stab at prediction. It was easy to see that the U.S. was losing farmers at the rate of 35,539 a year. Blackenschultz simply divided the number of farmers counted

(*Continued on page* 148)

IRRIGATION-

BY TRICKLE OR SPRINKLE

BY CHANGING HIS MIND a couple of times, Arnold Nehrig has become an expert in the costs and problems of applying water to his farm. Now, neighbors who are planning to start irrigation make a point of getting Nehrig's advice before they decide whether sprinkler or gravity is their best bet.

Whether or not to irrigate has never been a problem with Nehrig—he decided his 220-acre Kansas farm needed water 20 years ago. Just *how* to put water on the land was a problem. Like many farmers who are going into irrigation, he wanted to know the advantages and disadvantages of each method of water application and what each would cost. He began with gravity irrigation before movable pipe was available. Later, he weighed the advantages and disadvantages on his own farm and switched to sprinklers. Now, because of changed conditions, he has once more put all the arguments in the balance and shifted back to gravity. Since every farmer who wants to irrigate must consider these same problems, Nehrig's experience gives some valuable tips on deciding which method best fits the farm.

When Nehrig moved to his cash-rented farm near Marysville, Kansas, in 1935, he brought with him, along with his machinery and farm training, the idea that irrigation pays. He had found this out on his father's farm in Nebraska. With all of his tillable acres on the gently rolling flood plain of the Big Blue, he was able to pick a 25-acre plot that was flat enough to irrigate by gravity. In 1937, with a gasoline-driven pump at the water's edge, he pushed enough water up the 24-foot bank to furrow irrigate his 25-acre plot. "Fifteen acres of the plot was pretty flat and I was able to use an old grader I had on the place and put up shallow borders and flood irrigate alfalfa. I tried to irrigate the other ten acres of corn by running a ditch down a ridge and let the water run off on both sides. That was in the days before siphon tubes so I did the best I could with a canvas dam and a shovel," Nehrig said. "We showed that water paid off. But every time we had high water, the Big Blue would cover my pump and I'd have to get down there with a shovel and dig it out of the silt before I could irrigate again. In 1941 we had floods and a chunk of the bank gave way and buried my pump—that was just too much. We were getting pretty good rains there for a while and, like everybody else, I forgot about irrigation."

Six years later when he heard of the new sprinkler system Nehrig began thinking of irrigation again. "I drove five thousand miles to see my first sprinkler," he recalls, "all the way out to Oregon and back. Once I saw one of the systems in operation, I knew that it would work. Then I had to get right down to some careful thinking about the problems of making it work on my own farm.

"My first thought was that with a sprinkler system I could irrigate all my tillable land instead of just a patch. Knowing the lay of the land and being reasonably sure that I wasn't going to be able to make water run up hill in an open ditch, I figured that even if I leveled the land I would have to buy almost as much pipe for gravity irrigation as I would for a sprinkler system. At that time I hadn't even heard of gated pipe, so when I thought of gravity irrigation I was thinking of ditches and siphons. Any way you looked at it, piping water up to head ditches at various levels and then irrigating from them with siphon tubes would be darned expensive when you take into account the uneven slopes of the land."

Nehrig was well aware that there would be extra labor connected with moving the lateral lines on a sprinkler system—but with a husky son and a daughter who could drive a tractor as well as any one in the neighborhood, this didn't bother him too much. "The real clincher to me was the fact that I was farming on rented land," Nehrig said. "We rented the farm on a year to year basis from the Scully estate and, though my neighbor is also a Scully tenant and has been on the farm for sixty years, there is no written assurance in the contract that we can stay beyond the rental year. The question finally boiled down to this: why put a lot of money into shaping rented land which I may leave in a year or two, when I can buy pipe and sprinklers that I can take with me? The answer seemed pretty obvious to me. I bought the sprinkler system."

The system Nehrig bought reflects the stage of development of sprinkler irrigation in 1947. Aluminum pipe was available only in six-inch and smaller sizes, so he had to settle for galvanized steel for his eight-inch main line. Even in 20-foot lengths it takes two men to move a single length of pipe. Fortunately, his layout is so arranged that the 1500-foot main line is practically a permanent fixture. For lateral lines he selected 1500 feet of six-inch aluminum pipe and 500 feet of five-inch pipe. Three giant sprinklers with one-inch nozzle openings were also purchased. The total cost came to $8,000.

Having learned the tricks of a rising and falling stream, Nehrig decided to set his pump well back from the bank. He dug a 12-foot pit a couple of hundred feet from the banks of the Big Blue and ran an inlet pipe underground to the water. In this way he was able to get maximum efficiency from the pump to push the water rather than to lift it and then push it. And he needed efficiency, for he had

Arnold Nehrig (above) who has used border, gated pipe, and sprinkler irrigation on his Kansas farm is a good man to evaluate the methods available today. The variety of systems ranges from gravity to perforated pipe to the giant sprinkler (right) which pours an inch an hour on three acres.

Siphon tubes (above) were the first step toward eliminating the back-breaking shovel work from gravity irrigation. A second advance was made with gated pipe, (below) which takes the place of the ditches.

to pump 1,000 gallons a minute at 85 pounds pressure to feed the sprinklers and keep the water broken up into rain-sized droplets.

Hybrid seed corn, Nehrig's principal cash crop, was planted in blocks 50 rows wide with 14-foot brome and alfalfa strips between each block. With this layout he was able to lay the pipe in the meadow strip and water the corn on both sides.

"We would get out every morning at five—Jeanie driving the tractor and Dean and I loading and unloading pipe," Nehrig said. "It took us around two hours to move the lateral and get the water running through the three sprinklers. Every three hours during the day I'd move the sprinklers down the lateral and at eight or nine at night I'd shut her down with nine acres watered. I figured it took me three hours a day to move the sprinklers and check the pump. We kept the system off during the night and by morning the brome and alfalfa ground would be dry enough to drive over. I can't say that I enjoyed pipe moving; even at five in the morning the alley between the corn was like a steam bath."

For most of 10 years the system worked very well. Nehrig got a lot of kidding from neighbors who smiled as they saw him putting out good money for propane to run the pump and good hard labor to move the pipe. Nehrig had the last laugh, for his bank account showed that if supplementing normal rainfall was a joke, Nehrig was not the victim. Then came the drouth years of 1954, '55, and '56.

The system which was designed to supplement a normal rainfall was not big enough to provide the biggest part of the water for a growing crop. "Friends from Nebraska who were using gravity irrigation showed me that they were getting ninety-five bushels to the acre on their irrigated corn where I was getting fifty-five," Nehrig said. "At just a dollar and a quarter a bushel, that's fifty bucks an acre difference. When this happened in '54 I was disturbed. When it happened again in '55, I just had to sit down and give it some serious thought.

"I knew that I had three choices: I could water less acreage and so get over the land faster, or I could increase the size of my sprinkler system, or I could level the land and shift to gravity irrigation. Watering less land in those dry years meant cutting down on the size of your farm; although I wasn't satisfied with my yield, without irrigation farmers around here weren't growing enough to pay for the seed and harvesting. So the real choice in my mind was between a bigger system or land shaping for gravity. This was the same old problem I had faced before, but now I had three new elements to consider.

"My son, who had spent his summers on the farm, was graduating from college and was ready to go out on his own. And Jeanie, who drove the tractor for us, had made up her mind to go into nurse's training. I saw the old man, alone and unable to hire competent help, trying to move all that pipe by himself. The second factor was that I had spent ten more years on this rented land and felt more secure about putting money into the place. I figured that the difference between my yield and the yields my friends up north were getting was enough to pay for the leveling. And I had come to know the Scullys better and felt that they weren't the kind of people who would penalize me for improving their land. If someone

(*Continued on page* 93)

COMPARISON OF INVESTMENT AND ANNUAL COSTS FOR SIPHON TUBE, GATED PIPE, AND SPRINKLER SYSTEMS (141 ACRES)

	Siphon tube	Gated pipe	Sprinkler
Investment in equipment	$ 836.00	$ 7,089.05	$7,779.04
Investment in permanent structures	853.76		
Land grading costs	6,038.50	5,953.43	
Total investment	7,728.20	13,042.48	7,779.04
Interest on investment	193.21	326.06	194.48
Depreciation	55.75	347.68	388.97
Taxes	21.12	88.61	97.24
Repairs	6.42	23.94	56.16
Labor	447.36	388.07	997.42
Tractor	39.84	89.00	111.00
Power	112.00[1]	112.00[1]	1,632.00[2]
Total Annual Cost	875.70	1,375.36	3,477.27
Cost per acre irrigated	6.21	9.75	24.66
Cost per acre, each 4 inch irrigation	1.29	2.03	5.14
Cost per acre, each 1 inch irrigation	0.32	0.51	1.28
Cost per acre irrigated			
Fixed	1.92	5.40	8.64
Percent of total	31%	55%	35%
Variable	4.29	4.35	16.02
Percent of total	69%	45%	65%

[1]The cost of additional water pumped is computed at $3.50 an acre-foot. This additional water is pumped because of low distribution efficiency of these systems of distribution compared with the sprinkler system.

[2]The extra power to produce pressure for a sprinkler system is computed at $0.85 an hour.

A sprinkler system is the third most common method of irrigation. With this system, the contour on the land can be ignored. The chart (left) prepared by Warren W. DeKrey, a University of Nebraska economist, shows the cost of siphon, gated pipe, and sprinkler systems on 141 acres of the same Nebraska farm.

The amount of water available for irrigation, the contour of the land, and the depth of the topsoil are all important in deciding which system to use. Sprinkler irrigation uses less water and requires no leveling; a gravity system usually requires land shaping which depends on having a margin of topsoil. Gravity costs less to operate. In the past, gated pipe was found to use the least labor, but the new booms and wheeled systems are reducing the labor requirements of sprinkler systems.

Which Method For You, Sprinkler or Gravity?

This innocent-looking, delicate flower carries calamity in the thousands of seeds each plant produces. Its one weakness—it will not germinate in the absence of a host plant. The red arrow (below) points to the beachhead it has gained in the grey area. The yellow area, roughly the Corn Belt, is threatened.

By J. M. Eleazer

Witchweed Gains A Beachhead

THEY CALL IT Witchweed. Its real name is Striga, *Striga asiatica* and it is one of the most destructive parasites of corn and other grasses in the world. Now it has seized a beachhead in America and is spreading its destruction inland.

Known, written about, and cussed in Africa, Asia, and Australia since as early as 1790, it was first identified in the Western Hemisphere in July of 1956. County Agents in several counties on each side of the Carolinas' border, in the vicinity of Lumberton, N. C., had noted its effect on corn, and samples of the dwarfed corn had been sent to the state laboratory for diagnosis. Careful examinations for bacteria, virus, nematode, fungus or mineral deficiency that might be causing the trouble were made and nothing was found.

It was a routine July day in 1956 when tobacco specialist S. N. Hawkes from N. C. State College dropped in to County Agent O. P. Owens' office in Lumberton to check on some tobacco matters. Owens was busy and sent his assistant, Grover Rogers, out with Hawkes and asked them to stop by the M. B. Jones farm, Red Springs, N. C., on their way and see what ailed his corn. They noted the stunted, drouthy spots of corn in an otherwise good field. Sample stalks were pulled and Hawkes took them on back with him to State College at Raleigh.

For a while this sample, like others, revealed nothing—no bacteria, virus, nematode, fungus, nor mineral deficiency that could have been causing the trouble. It looked just like drouth corn, a starved plant. By merest coincidence, a graduate student in plant pathology from India happened to look at the roots of this particular sample. He saw something on them that was familiar to him, but so strange to us that it had gone unnoticed. It was the haustoria or sucking organs from Witchweed still attached to the roots of the corn plant. After that its positive identification was quick. And, hitherto unknown in the Western Hemisphere, dreaded Witchweed had gained a substantial footing in America! This was the weed a prominent scientist, surveying all corn pests in Mozambique, southeast Africa, labeled "the worst enemy." And an authority on Witchweed in the Sudan said of it: "The damage caused by Striga qualifies it to be listed among the greatest endemic crop diseases of the world."

Hurried surveys during the remainder of the 1956 season, after its discovery, revealed its presence in 8 counties, 4 on each side of the line dividing the Carolinas. Extensive surveys during its summer growing season in 1957 over adjacent counties and even into other states showed infestations in 11 counties in North Carolina and 6 in South Carolina, all adjacent to the original area. The number of these farms varied in North Carolina from one in Richmond county to 663 in Robeson, the county from which the original sample was taken the year before. And in South Carolina the number of infested farms varied from 2 in Darlington to 186 in Dillon county. The totals were 1,320 infested farms in North Carolina, embracing 54,148 cultivated acres, and 419 infested farms in South Carolina, totaling 27,262 tilled acres. No Witchweed was found where surveys were made in other states. However, these surveys are not complete.

The question immediately arises as to how and when did it get here?

No one knows. Some think it might have come in the gear of soldiers returning

The tentacles of the Witchweed fasten on the roots of the growing corn, robbing it of food. The favorite hosts of the Witchweed are plants of the grass family.

from World War II. It could have come in the dust in the pants cuff of a traveler, or in any of many ways.

As to how long it has been here, some folks, in the light of afterthought, think they have been seeing it since the mid-forties. And those familiar with it feel these folks might be right. But the earliest tie-down of this I've been able to find was from County Agent V. M. Johnston, (Horry County), Conway, S. C. Strangely, his brush with it, like the one that found it in North Carolina in 1956, was with his extension tobacco specialist, J. M. Lewis, back in 1951.

Mr. Lewis had come to Johnston's county to help with reported tobacco troubles. In going to one field, he and Johnston had to walk through a corn field. There Johnston, being a great fancier of flowers, noticed a little weed with pretty bright red flowers on it growing in the corn middles. The corn was very sorry, when it should have been good. But it looked like drouth damage, and they just dismissed it at that and went on about the tobacco business. It was on this same farm they found the first Witchweed in that county in 1956. And both Johnston and Lewis remembered it as the little weed they had admired five years before.

It appears the main reason this pest was not detected before was the fact we had a series of rather dry years during that time, and Witchweed damage looks a lot like drouth damage. So it was passed off as that. Even though sample stalks of affected corn were sent to state laboratories for diagnosis, they were usually prepared and the roots washed clean for shipment, doubtless leaving little if any evidence of the parasitic weed on them. County Agent C. D. Raper of Columbus County, North Carolina, told me of a number of such samples he had sent in since 1951. These came from farms on which the pest was later discovered and he now knows them to have been victims of Witchweed.

The Sleeping Beauty

This Striga is a strange plant, strange in many ways. It is strictly a parasite and sucks its life from the roots of plants of the grass family. This includes corn, rice, sugarcane, the sorghums, small grains and various grasses.

It makes myriads of almost microscopic seed that will lie dormant in the soil for as long as 20 years until the root of a host plant comes near it. Then for some strange and largely unknown reason it will sprout, attach itself securely to the root, and live from it from then on. When a seed finds itself as close as three to four millimeters to the root of a host plant it is stimulated to growth by the "host extract" given off by the root, and starts to sprout, attaching itself to the root by a fleshy sort of club growth called haustoria, or sucking organ. When the host dies the Witchweed dies too. After germination, it takes it about 30 days to send a shoot to the surface.

It is a pretty, ferny looking, light green plant that gets from 6 to 10 inches high, and has showy nasturtium-red flowers, about the size of a quarter, with yellow centers. It has multiple branches, both near the ground and above, while deeper in the ground it has only a single stem. Leaves and stems have a fuzzy appearance and are about the same size, around an eighth of an inch in diameter. The leaves come in pairs from the stem almost opposite each other, and at 90 degree angles to the sets both above and below them, thus alternating around the stem. The flowers come just above the leaf attachment to the stem. And as the stem grows and branches, more flowers come, and it continues to produce seed pods throughout the season. The seed pods or capsules are 5-sided and each side terminates in a characteristic spur. The seed pod contains about 1,350 tiny seeds, each measuring about 1/5 millimeter in length. The dark brown seed pod bursts open about one month after flowering, scattering its seed, while blossoms continue appearing higher up the plant. One plant produces from 50,000 to 500,000 seeds.

The water white Witchweed root or underground stem is round in cross-section, 1/16 to 1/8 inch in diameter and de-

(*Continued on page* 139)

FARM BOYS IN BASEBALL

By Waite Hoyt

Babe Ruth and Waite Hoyt, teammates on one of the greatest Yankee teams of all time, reminisce at a dinner party. This photograph was taken just before the Babe's death. Hoyt pitched in six World Series. For seventeen years he has been "The Voice of the Cincinnati Reds." Walter "Big Train" Johnson (top) and friend. Johnson has operated a Maryland dairy farm since his retirement.

BIG LEAGUE baseball, you might say, has its roots down on the farm. In the early days most of the players came from rural areas. Even today, almost half the active players record their birthplaces as Rural Route this-or-that. The greatest of them all, Babe Ruth, was no farmer, but the farm touched him at least twice in his luminous career.

In 1927, the year Babe set the home run record with his sixty round-trippers, he lost a bet. Ruth, the great, the glorious, the most powerful producer of home runs the game has ever known, lost a three-hundred dollar wager to a cotton-thatched farm boy named William Wilcey "Cy" Moore from Oklahoma by way of Bonita, Texas.

Wilcey Moore was a baseball oddity. When he came to the Yankees in 1927 little if anything was known about him. A right-hander, in 1926 he had pitched for Greenville in the Sally League where he won 30 games while losing 4, a remarkable feat in any league. It was said that Ed Barrow, the astute business manager of the Yanks, was thumbing through the minor league records when he stumbled upon Moore's name. Ed was so amazed he picked up the phone, called Greenville, and bought Moore without even a look-see for $4,500.

When Cy reported at St. Petersburg the blase New York sports writers took a gander at his balding dome with the patches of cotton and snorted, "Thirty years old, big and slow; what kind of a rookie is this?" Moore showed 'em a fine arm, a tremendous sinker and great courage. He became one of the great relief pitchers of all time, a veritable Frank Merriwell; a stopper; a magician. Many a game he saved for me, including the opener of the 1927 World Series against the Pittsburgh Pirates.

Wilcey was, as Ruth called him, a real "plow jockey." Big feet which turned outward, raw boned—big muscled, broad of beam and shoulder with a wide-open, innocent face. Joining the famed Yanks and discovering the big time must have been soul-shaking to Moore, but he went about his work in a humble, direct way, and in no time became one of the best liked fellows on the ball club.

Babe Ruth took to the Oklahoman immediately. The great Sultan of Swat was perhaps attracted by Moore's impotence with a bat. Whereas hitting a baseball was second nature to Ruth, hitting a baseball was complete bafflement to Moore. Ruth kidded Moore unmercifully. Wilcey would color up and say, "I'll make a hit some day. Wait and see."

Ruth finally said, "Wilcey, you couldn't hit a bull in the rump with a barrel stave. Tell you what I'll do. If you make as much as one hit this season, I'll give you a hundred bucks. In fact, I'll give you a hundred bucks for each hit you make. If you don't get any hits at all, you owe me a hundred."

For five and a half months Ruth's prediction looked like money in the bank for the Babe. Moore's bat was feeble; at the plate he was a lamb. But, came the final series with Detroit and Moore was called in to relieve. First time at bat Cy managed to nudge the ball down the third base line. The third sacker was playing back so far he couldn't get to the ball. Moore trudged down the first base path like a guy pushing a cannon. Safe at first—one hit, one hundred bucks.

The next time at bat Moore bunted. The ball started foul, but changed its mind at the last second and stayed fair. Another hit, another hundred. Third time at bat Cy unloaded. He swung with force. The ball managed to clear the pitcher's head, took a queer bounce, eluded the Detroit infielders, and to everyone's surprise, including Moore's, came to rest untouched out beyond second base. Moore had won $300 in one game—the Babe with great fanfare and hilarity paid off immediately after the game.

That fall Babe got a wire from Moore which said, "Used your three hundred bucks to buy me two mules. Have named one Babe, the other Ruth. Thanks, and can I hit!" Babe really got a bang out of that wire.

That was one time Babe was bested by a farmer. Another time he was floored by a farm. In his early days Ruth was busy discovering the world. Money was to spend, not to save. Around 1923, someone talked the Bambino into buying a few hundred acres some thirty miles outside of Boston, wonderful Colonial dwelling, rich soil and so on and so on. Ruth sailed for the idea

and sank a wad of his home run dough.

Babe's first step was to call in a moving van and have all the "junk" removed. Colonial chairs, cupboards, tables, breakfronts and china. "Haul it the hell out of here," the big guy barked. Observers said that what the junkman carted away would have brought ten thousand dollars on the antique market. Then Ruth began buying stock. His approach to stocking a farm was direct and simple; he wound up with one of each; one cow, one bull, one horse, one rooster, one hen, one sow, and one boar. He also had a small pond.

Whenever the Yanks played in Boston Ruth took us out to "The Farm." One night Ruth, Joe Bush, Wally Pipp, and a couple of others took shotguns and lanterns and hunted bull frogs near the pond. The expedition caused a Boston sportswriter, Paul Shannon, to comment, "Hunting bull frogs with a shotgun is my idea of a great sportsman." Ruth never forgave Shannon for that crack.

Ruth's career as a tiller of the soil came to an abrupt end when his dog attacked a neighbor's cow and chewed off all four teats. The neighbor sued and Babe said, "Nothin's safe on a farm." He did his hunting after that in the heart of New York City.

Farms and rural areas have contributed more to big league baseball than can be estimated; more, certainly, than has been estimated. No statistician, to my knowledge, has ever compiled figures showing how many big leaguers got their start in the "sticks", or out of range of big league influence.

I'm speaking chiefly of boys who were not able to skip into town to see big league teams in action or read daily stories and columns about the local players. A modest review of the rosters of the big league teams in training in 1957 showed 629 names listed. The National League had 318 men in camp. The American League had 311. Of these, 133 American Leaguers were from rural areas and 126 National Leaguers. Perhaps I should point out I tried to pinpoint the birthplaces of the rural boys as those being distinctly outside the city zones. It's difficult, because some of the men give as their birthplaces such towns as White Plains, New York; Argo, Illinois; Anaheim, California, and Hamtramck, Michigan. Such places are really suburbs of large cities.

We find some mighty interesting names catalogued as birthplaces of ballplayers. You recall easily Ash Flat, Arkansas, the natal site for Preacher Roe; Bill Voiselle of "96," South Carolina; Harry Brecheen of Broken Bow, Oklahoma; Pea Ridge Day of Pea Ridge, Arkansas.

There's Ed Bailey of Strawberry Plains, Tenn. The list is long, as you may discover; Potts Camp, Miss.; Hood River, Oregon; Rising Sun, Maryland; Nitro, West Virginia, the home of World Series hero Lew Burdette.

It seems there's a baseball story to fit

Babe Ruth's (left) idea of stocking his Massachusetts farm was to buy one of everything: one pig, one cow, one hen—. Dizzy Dean (below) was born on a farm and went back to farming when he retired. He developed his tremendous stamina in the cotton fields. The former Cardinal donned his Texas hat to celebrate election to the Baseball Hall of Fame. Bob Feller (bottom) the small boys' ideal of a baseball player, and his late father, William Feller, on his home farm at Van Meter, Iowa.

Babe Herman (left, above) brings his son, Don, from his Glendale, California, turkey ranch to begin a big league career with the Yankees. Clint Courtney (below) jumped from the cotton patch to baseball to ranching. Formerly from Mobile, he now lives in Louisiana.

Charles James "Chick" Hafey (above) does all his own work on his Napa, California, ranch. Runs about 45 Herefords and some sheep. The last time he played ball was in an old timer's game—got hit on the elbow with a fast pitch and hung up his spikes for good. The two youngsters (right), Lindy and Von McDaniel, sensations of the 1957 Cardinals, came straight from a dairy farm in Oklahoma. Back on the farm is a younger brother, also a pitcher.

most categories, even towns and villages. Years ago, in the middle thirties, I was a member of the Pittsburgh Pirates. On the same team, and a pitching mate, there was the Mississippi Mudcat, Guy Bush. A fine fellow; a fine pitcher. The Pirates were making their annual spring exhibition tour with the Chicago White Sox. One of the games was scheduled for Tupelo, Miss., Bush's home. The citizens of that little town were eagerly waiting the arrival of the White Sox and Pirates. A big time was in store for everyone. Guy Bush, the native son, was to be honored. Bush was to receive money, an auto and other gifts. The day before we had played in another southern town and were en route by sleeper to Tupelo. Early the next morning we were told, "We won't be stopping at Tupelo. We'll be going straight through to Memphis." We soon knew the reason. During the night a tornado had reduced Tupelo to a shambles. Utter destruction, loss of life and property, and of course, zing went "The Day" for Bush.

Ballplayers have been born in towns so small they no longer exist. Rube Bressler, the old Cincinnati outfielder, claims, he was born in Coder, Pa., the site of a logging mill. When the company had cut down all trees, the town disappeared.

Ring Lardner, who perhaps introduced more folklore into baseball stories than any other man and who drew his character descriptions directly from the players on the White Sox, once described a farm boy's first night in a big city hotel, saying the busher was so lonesome he turned on the bathtub faucet and let the water run all night for it reminded him of the waterfalls at home.

But what would the big leagues be without the farm boys? In my opinion between 41 and 45 percent of all major leaguers have been drawn directly from the hay or cotton fields, or at least from so close to farms as to have a working knowledge of the "north forty."

It must be true that farm youngsters have something their city counterparts have not been able to acquire. The ruggedness of frame, the stamina, the ability to stand up under a broiling sun, as they might do laboring in a field or a meadow at home. I have no doubt that the muscle fibre and the snappy tendon of the farm kid are products of plain food, open air and hard work. Legs are strong and lasting because of miles of walking over rough terrain.

Who will deny the evidence provided by the fast balls of the greatest speedsters ever to throw a ball. Let's examine the list. The Big Train, Walter Johnson, Humboldt, Kansas; Rapid Robert Feller, Van Meter, Iowa; Lefty Grove, Lonaconing, Maryland; Dazzy Vance, Orient, Iowa; Dizzy Dean, Lucas, Arkansas and points west; Van Lingle Mungo, Pageland, South Carolina. I may have missed one or two, but that's a group of real fast ball throwers. Strikeout artists. Strong

boys, and they knew the front end from the back end of a plough.

There can be no question that the move from the corn rows to the paved city streets left some such men awed, and ripe for the picking by city slickers.

Walter Johnson, whom I believe was the best pitcher ever to toe a rubber, was pitching for a small-town team in Idaho. The Swede was scouted by Cliff Blankenship, an injured Washington catcher. Blankenship took one look at Johnson's blazing speed and saw enough. He made Walter an offer. But Johnson shied away, saying, "It's all right to get me to Washington but if I don't make good, how do I get back to Idaho?" Blankenship guaranteed the return fare and off to Washington Johnson went never to return. But he was a Green Pea, as they called bushers in those days. He pitched his first game and lost to Detroit, 3—2, because he couldn't field bunts. After the game the team rode back to the hotel in horse-drawn vehicles, but Johnson didn't know that. Walter went out another gate and walked all the way from the ball park to the hotel downtown in his uniform.

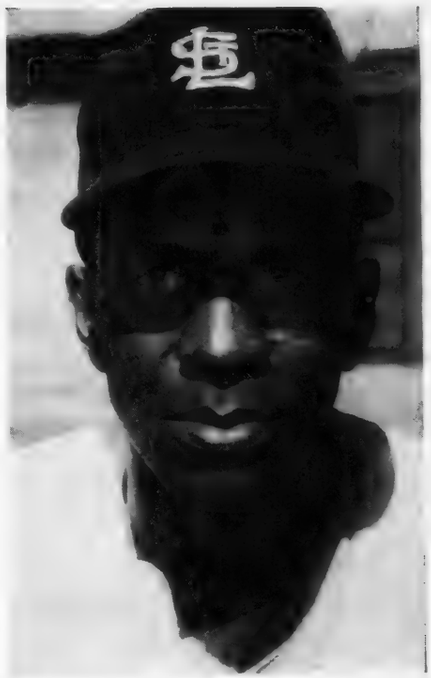
I recall a youngster named Baumgartner who came out of the hills of Tennessee. He had a fling with the Yanks. When the team arrived in New York, the headquarters before opening day was the Ansonia Hotel. Baumgartner asked a mate to show him the way to the hotel. The team detrained at Penn Station and boarded the 7th Ave. subway. Between 42nd Street and 72nd Street the car sped with an earsplitting roar. Baumgartner declared himself out. "Next stop I get off," he declared. "I wouldn't ride this danged fool contraption for 10 Yankee teams." The next stop was the destination anyway, but never again would Baumgartner ride a subway.

Of course the farms have supplied hitters and fielders as well as pitchers. You can quickly think of Ty Cobb and Tris Speaker. You can think of first basemen such as Jimmy Foxx, and Sunny Jim Bottomley. Jim Foxx, called the "Beast of Sudlersville, Maryland", was asked what gave him such tremendous wrist power and he quickly replied, "Milking cows, my boy, milking cows."

Rogers Hornsby, the greatest right-handed batter of all time, was born in Winters, Texas. The Rajah was scouted by Bob Connery and brought to the St. Louis Cardinals. Miller Huggins was the manager. Hornsby weighed 135 pounds. He played in 18 games in 1915 and batted .246. After the season he asked Huggins about his future. Hug said, "Rog, guess I'll have to 'farm you out' for a season or so. You've got to pick up weight." Hornsby thought Huggins meant a real farm instead of a baseball farm. That winter Rogers took himself off to his uncle's farm where he sawed wood, drank milk and gained thirty pounds. The next year he stuck with the Cards and batted .313. Big Poison, Paul Waner, and Little Poison, Brother Lloyd, said they learned to hit swinging at corncobs with a broom handle at Harrah, Oklahoma.

Cy Young, the winningest pitcher in history, got his start on the farm of his grandfather a dozen miles out of Newcomerstown, Ohio. His grandpop, McKenzie Young, neglected to repair a hole in his barn. Young conditioned himself for his future career by throwing stones, apples or anything else that was handy at that hole. "Cy" won 510 games, according to the records, and pitched three no-hitters. He and another farm boy, Bobby Feller, are the two hurlers with three no-hitters to their credit. The nickname "Cy" frequently identifies the boy from the country, being, I suppose, a contraction of Cyrus, or a derivation of Silas. But in the case of "Cy" Young, he drew the nickname because a reporter once said, "His ball comes up there like a cyclone."

Warren Spahn, the Milwaukee ace, bought a ranch at Hartshorne, Oklahoma, and stocked it with good cattle. The cattle did fine, but finer still, a number of oil wells came in on Spahn's spread and he's on his way to wealth.



The ageless Leroy (Satchel) Paige, whose stamina and vigor have become legendary. There's a good deal of cotton patch wisdom in his six rules for a long and happy life: 1. Avoid fresh meats which angry up the blood. 2. If your stomach disputes you, lie down and pacify it with cool thoughts. 3. Keep your juices flowing by jangling around gently as you move. 4. Go very light on the vices such as carrying-on in society; the social ramble isn't restful. 5. Avoid running at all times. 6. Don't never look back; something may be gaining on you.

It is true the rural areas have transmitted to baseball customs and vernacular peculiar to their own environs. Chewing tobacco, I am sure, was brought to the professional ranks by the farm youngsters. I have known ballplayers to put cabbage leaves in their caps to keep cool in summer. A city boy would never have thought of that.

A baseball has been called an "apple", a "tomato", and a "potato"; a batter an "apple knocker." Free swingers are said to "cow tail", or "buggy whip" the ball. When a batter hits a ball up on the handle of the bat, someone is likely to chirp, "Sounds like he hit that one with a cornstalk." Red Barber, the famous play-by-play broadcaster was liked for his homely references to the "cat-bird seat" or "eating high up on the hog." During a batting rally the Redhead would drawl, "They're tearing up the pea patch now." Strictly ruralisms. We have baseball's own terminology for a youngster sent out for more experience: "Farmed out." Minor league clubs are referred to as "farms." And a major league team today is said to be "as strong as its farm system." Minor league

(*Continued on page* 144)

Rx

GOOD GRASS SILAGE

Preserving grass as high quality silage is exacting but not difficult. The rules are simple, yet dependable. Starting with good grass is the most important requirement

By Chester Charles

"SILAGE MAKING is one of the most inefficient practices on modern farms. The waste is appalling; as much as 40 per cent of the nutrients in forage grown for silage on many farms is never consumed by livestock."

So says Dr. M. A. Sprague of Rutgers University. But Sprague is in no way condemning silage as animal feed. As a specialist, he considers silage the key to economical livestock farming.

"Quality grass silage," he says, "can't be beat as low-cost, highly nutritious, preserved forage. It's the way it is made and kept and fed on typical farms that turns a tremendous tonnage of potentially good silage into low-grade feed. Farmers, not silage, are at fault.

"Silage losses of 15 to 30 per cent are commonplace. To this add the feed spilled at silos and feed bunks. It is a common attitude to consider these losses negligible; yet, what farmer wouldn't revise his methods if 2 or 3 bales of hay out of every 10 he sweated over in June were hauled away as unfit for feeding in January?

"Many farmers who regularly put up excellent corn silage fail miserably when they turn their hands to grass silage. Though dealing with a different material, they neglect to modify their methods. Big losses follow. These losses have three sources: surface spoilage from exposure to air, seepage from high-moisture crops under pressure, and improper fermentation. By following a few simple rules, plus a working knowledge of what goes on in a silo, losses can be reduced to near zero."

Silage is the product of fermentation. In fermentation, a farmer is dealing with live organisms, bacteria. His job is to control the bacteria.

When put in the silo, the plant cells in the cut forage do not die immediately. They use the limited air in the silo for respiration, which, under the packed conditions of the silage, causes a rise in temperature of 10 to 15 degrees, bringing it somewhat under 100 degrees. The temperature ceases to rise when the available air has been used up, and the plants die. At this point, bacterial fermentation and change of plant sugars into lactic acid begin. Bacteria that form lactic acid are anaerobic; that is they cannot live in the presence of air. Within a few days, when the lactic acid has increased to produce a pH of 4.0 to 4.2, the bacteria are subdued and the ensiling process is complete. Such silage will keep for years.

At 65 to 70 per cent moisture, forage packs well in a silo but contains enough air to permit the desired temperature rise. If the material is too wet, containing upwards of 75 per cent moisture, packing may be so tight that all air is excluded. The plants quickly die. The forage never heats to the point where lactic-acid bacteria can multiply. The soggy, low-temperature conditions favor the growth of the kind of bacteria that produce rancid butter. The result is sour, unpalatable silage from which most of the protein is lost, both through bacterial breakdown and in the run-off of juices from the high pressures developed in the wet material.

Dry forage never makes good silage. It is difficult to control the fermentation in dry, stemmy material. At a moisture content below 55 per cent, forage is difficult to pack. Air gets in, permitting excessive respiration, mold growth, and overheating, with high nutrition losses, especially of carotene and carbohydrates. Such dry meadow clippings ordinarily have little protein before going into the silo. Overheated silage, usually dry and dark brown, may be quite palatable, but it is low in digestibility.

Mold is not a product of fermentation. Molds develop in green material only in the presence of oxygen. Air pockets from uneven packing, side leaks in silo walls, and uncovered silo surfaces favor the rapid growth of molds. Moldy silage is not only a complete loss; it can be toxic as well.

Why is corn more easily made into silage? In the fall, the moisture content of milk-stage corn is normally around 65 per cent, just right for ensilage. Corn is more uniform as a crop than grass and less contaminated by weeds. Corn silage does not go through hot weather while it is fermenting. The natural sugars in corn give it a big edge over grasses and legumes

Tonnage is a poor measure of silage feeding value. A pound of quality silage is worth a scoopful of the soggy, sour sort. Protein is the best indicator of quality. When the protein is high, vitamins are up and fiber down. Palatability rises with quality (table at right). Optimum protein results from cutting forage early, as shown in the table.

TIME TO CUT AND METHODS OF ENSILING FORAGES

CROP	BEST STAGE TO HARVEST	DRY MATTER PERCENTAGE	WILTING METHOD: HOURS OF SUN WILTING ADVISABLE	ADDITIVE METHOD — amounts of additive per ton of silage: MOLASSES pounds	GROUND CEREALS OR CITRUS MEAL pounds	CORN AND COB MEAL pounds	SODIUM METABISULFITE grams
Alfalfa	¼ bloom	22-27	2-3	80	150	200	10
Red Clover	⅓ to full bloom	23-28	2-3	80	150	200	10
Crimson Clover	½ to full bloom	23-28	2-3	80	150	200	10
Soybeans	pods ¾ filled	23-28	2-3	80	200	250	10
Cow Peas	first pods filled	18-21	3-4	80	200	250	10
Sweet Clover	⅓ to full bloom	20-25	3-4	80	150	200	10
Bluegrass	before bloom	25-30	0-1	40	100	100	0
Orchard Grass	before bloom or very early bloom	25-30	1-2	40	100	100	0
Cereals	early milk stage	22-27	2-3	40	100	100	0
Birdsfoot Trefoil	¼ bloom	22-27	2-3	80	150	200	10
Ladino Clover	⅓ bloom	22-27	2-3	80	150	200	10
Brome Grass	heads showing to early bloom	25-30	0-1	40	100	100	0
Timothy	heads showing to early bloom	25-30	0-1	40	100	100	0
Alsike Clover	¼ bloom	22-27	2-3	80	150	200	10
Sudan Grass	well headed to full bloom	25-30	0-1	40	100	100	0
Grass-Legume Mixtures	adjust, with regard for major species	22-30	1-4	50	125	150	0

HOW TO RECOGNIZE QUALITY IN GRASS SILAGE

	COLOR	ODOR	CAUSE	EDIBILITY
HIGH QUALITY SILAGE	Light to dark green (varying with the crop and the additive used)	Pleasant, sharp and clean		Very palatable; high nutritive value
MOTTLED SILAGE	Bright orange or yellow spots here and there	Same as above	Uneven distribution of chemical additives	Mottled portion refused
OVERHEATED SILAGE	Dark brown	Like Ky. burley tobacco	Too dry when ensiled or insufficient packing	Palatable but reduced feeding value
MOLDED SILAGE	Often like cotton	Musty	Uneven packing, entrapped air and air leaking into silo	Inedible
SPOILED SILAGE	Slick black, slimy	Unpleasant and offensive	Improper fermentation due to overwet forage, exposure to air or lack of additives	Inedible

Grass-legume meadows offer the best combination of succulent carbohydrates and proteins. A very similar balance comes from the increasingly popular practice of combining high carbohydrate corn silage with high protein grass silage. Supplement spread on the silage and mixed as it is unloaded, makes a complete ration.

as silage material. These sugars hasten lactic acid formation, making additives unnecessary with corn. The higher protein and calcium in legumes, with their lower sugar content, are less favorable to lactic acid formation.

Air Does the Dirty Work

"Many silage failures result from poor planning," says Dr. Don Hill, dairy specialist at Purdue University. "Silage-making is too often an emergency measure. Bad weather prevents haying and a farmer thinks he can save a half ruined crop by last-minute silage methods. The silo is not in repair or the equipment not in shape or the crop waits in the field for a custom operator. You know the picture. It happens all the time. It adds up to crops cut at the wrong stage of maturity, coarse-chopped to save time and horsepower, packed in a silo wet or dry, along with interruptions in silo filling that spell disaster.

"A lot of farmers still believe that putting a crop in a silo improves it. Nothing could be farther from the truth. Careful canning won't make spoiled peaches into good dessert. Good grass silage starts with good grass."

Purdue recommendations are simple enough:

1. Harvest forages at their nutritive peak. This means no later than the early bloom stage with most grasses and legumes, as shown in the chart on page 77.
2. Chop fine. A short cut aids packing. On wilted material, ¼ to ⅜ inch is best. For direct-cut material, ½ inch is satisfactory, although slightly longer cuts may be used on wetter forage. Sharp blades are essential.
3. Use an additive. Additives are necessary whenever forage is ensiled without wilting, when grasses are harvested in the boot or early heading stage, and when legumes are cut through the 1/10 bloom stage.
4. Fill the silo rapidly and pack thoroughly. The critical phase of bacterial activity in wet silage may be completed in 48 to 72 hours. Silage is often spoiled before the silo is filled if harvesting is slow.
5. Seal as soon as filling is complete. A number of materials are effective. Soil, limestone, tar paper, waterproof paper, and plastic sheets are all popular. Their sole purpose is to make the silo air-tight. Their effectiveness depends on the manner in which they are applied.

Recommended practices do not vary regardless of the type of silo used. The one exception is the Harvestore. The manufacturer of these sealed structures suggests that they be filled with forage wilted to 50 or 60 per cent moisture and that no additives be used. This feedstuff, a product between hay and silage, is called "haylage." With it, most of the principles of silage-making have to be modified.

These upright, glass-lined steel tanks are filled through small top hatches, which are immediately sealed. The forage is unloaded from the bottom by a special mechanism. When forage is wilted to less than 60 per cent moisture and stored in the oxygen-free conditions of the sealed Harvestore, very little rise in temperature occurs. This, coupled with the low moisture of the forage, prevents the formation of much lactic acid. The re-

(*Continued on page* 118)

By covering stack silos with air-tight plastic bags, spoilage can be reduced to near zero. This "layer cake" stack is one of several shapes that are simple to construct, inexpensive to cover, and easy to feed out.

Air is the enemy of silage. Rapid truck filling in Georgia (above) and thorough packing in Indiana (below) are practices that minimize exposure to air. The old silage in the bunker silo on the Indiana farm was slightly crested, when topped-off, to shed water. Limestone was spread along the middle and at the edges of the plastic cover to hold it down. With careful handling the cover will serve for several seasons.

CORN,

A chinch bug, one of our worst pests, and an adult lady beetle, one of our best friends.

These chinch bugs moved into the corn field from nearby grain. To save the corn dieldrin is used at the rate of 8 ounces per acre of corn.

Early spring spraying, at a cost of 25 cents an acre, will protect the corn from grasshoppers. All the signs point to 1958 as a big year for grasshoppers.

The European corn borer is controlled by DDT. His feed bill was paid by American farmers who didn't spray last year, to the tune of $159 million.

A boll weevil looking for a home—on a juicy cotton boll. He is one of our most expensive insects. To control him southern cotton growers wage chemical warfare with sprayers every five days in the summer.

COTTON & chemicals

Farming with chemicals can add up to 30 bushels an acre to your corn. On cotton it can mean the difference between no bales and two bales

By Fred Knoop

This Texas farmer has just lost his corn crop to an army of grasshoppers.

OLD-TIMERS LIKE TO TELL about farming in the days when they didn't need sprayers, fertilizer, or grain dryers. It's all true! They didn't get 100-bushel corn, though. They could sell a few bushels of apples and the customers didn't mind if they had specks on them or a worm or two around the core. They lost 500 pounds of milk on a cow to flies in the summer and were never the wiser. Crops were skimpy in those days, but so were the weeds. Today when you fertilize and irrigate your cotton and corn, you do the same for your weeds. The problem is to build yields without providing a happy hunting ground for bugs and a perfect growing situation for weeds; that's where the sprayer has rolled on the scene as one of the farmer's most useful tools.

If you are in farming for keeps today you'll have to do more than sharpen your pencil to figure how you can afford not to own a sprayer rig of some kind this year. If you raise corn, all you need do to convince yourself of the dollars-and-cents value of spraying is look over the carefully kept records of D. W. Staniforth, E. P. Sylwester, and W. G. Lovely, of Iowa State, extending over the last six years. After the best mechanical tools like rotary hoes and tractor cultivators have done their job there are still the tough annual grasses and weeds to deal with. When soil nitrogen is low, the tests have shown that these annuals can cut yields by 20 to 30 bushels to the acre. Even on average fields with plenty of fertilizer and only a moderate amount of weeds, the tests showed that 7 or 8 bushels per acre could be lost to the uninvited guests.

These margins, varying from 7 to 30 bushels an acre, are well worth going after, and they are prime targets for the farm sprayer and the right chemicals.

Killing Weeds in Corn

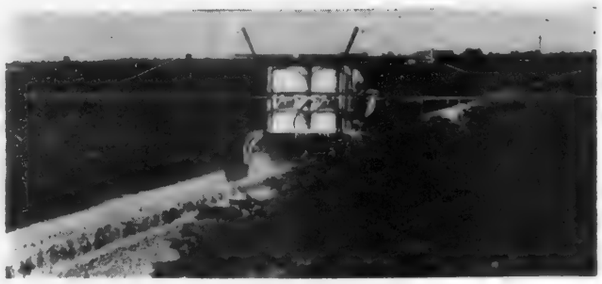
There are two basic weed killing periods which can be used to keep weeds in corn under control, and with luck and know-how even eliminated completely. They are the pre-emergence, and early post-emergence.

The pre-emergence spray can be used any time after the corn is planted until the corn seedlings emerge. The soil can be sprayed directly behind the planter but in any case should not be disturbed after spraying or a good part of the killing effect will be lost. The weed control chemicals most often used in the cornfield are of the selective type. Those most often recommended are: 2,4-D, basically a broad-leaf weed control, made by a number of chemical houses; Randox, which controls broad-leaf weeds and grasses, made by Monsanto. There is a new one, Simazine, made by Geigy. It controls many kinds of weeds and grasses. These chemicals are non-corrosive and relatively inexpensive, and easy to use.

The old reliable (in terms of the short, happy life of spray chemicals) is 2,4-D. In some areas it has been used for 12 years to control broad-leaf weeds. The corn plant tolerates 2,4-D, even if it doesn't like the smell, for which we can't blame it. A pre-emergence spray is particularly helpful in a wet season. Often a corn field in bottom land gets so much rain after planting that it can become completely sodded over before the tractors can be put back in the field. No amount of cultivation will get rid of this kind of weed growth after it once gets control.

There are two types of 2,4-D: the Amine type (4-pounds of 2,4-D acid equivalent per gallon) is a concentrated water solution. It is practically non-volatile; it stays put and doesn't damage nearby crops with its fumes. The Ester form of 2,4-D (available commonly with 4 pounds 2,4-D acid per gallon) is an oil soluble, water emulsifiable concentrate. Concentrates vary from 6 lb. to as low as 1 lb. 2,4-D acid equivalent per gallon. It is a more volatile form of 2,4-D and is effective against mature and resistant broad-leaf weeds. It penetrates the leaf tissue of plants faster and will do a good job even if rain falls soon after spraying.

For best pre-emergence spraying results, the soil should be moist enough so that the corn and weed seeds will germinate within two weeks after the application. Most state extension services recommend that not more than an actual 2 pounds of 2,4-D acid should be applied per acre. The amount of water used is not critical; 10 to 20 gallons per acre is the usual amount. There is a growing belief that the best results come from using lots of water. Using the ester form of 2,4-D (usually applied in pre-emergence sprays) the mixture would



CALIBRATING A SPRAYER

The most important fact to know about a sprayer is its output with the various nozzles you plan to use. We are indebted to the Delta Branch Experiment Station at Stoneville, Mississippi, for this information on calibrating a sprayer.

The output of spray per acre of a spray machine depends on the following four factors: tractor speed, pressure, nozzle size, and spacing of nozzles.

To determine the per acre output of a sprayer:

First, put a known amount of water in the spray tank.

Second, select a known acreage to spray. We suggest a 2 or 3 acre piece.

Third, spray the acreage, operating the tractor at normal speed and the pressure on the spray machine at 40 pounds.

Fourth, after completion of the spraying, drain tank and measure water left.

Fifth, subtract this amount from the original amount of water put into the machine.

The quantity of water used divided by the acres sprayed will be the per acre output of the machine.

A calibration check should be run each time the number of nozzles per row is changed, i.e., for 1, 2, and 3 nozzles per row.

If there is no convenient known small acreage, the operator may use the following table. A round trip over the distance (stepped length) makes a measured acre. Operate machine at the speed and pressure as in regular field application. Calculate the output per acre as explained above.

No. of Rows	Row Width	Stepped Length
2	36	1210 yards
4	36	605
6	36	403
8	36	302
2	38	1146
4	38	573
6	38	382
8	38	287
2	40	1089
4	40	545
6	40	363
8	40	272

Now, with the spray machine putting out a known amount per acre, the capacity of the tank must be ascertained accurately. The easiest and surest method to employ is to fill the tank with a measured amount of water.

To find the number of acres one tankful of insecticide will cover, divide the output per acre into the number of gallons contained in one tankful.

To calculate the amount of insecticide to put in the tank:

1. Determine the weight of actual poison contained in one gallon of insecticide. This is stated on the label.

2. Determine the amount of insecticide per acre recommended for control of the insect.

3. Divide the desired amount (recommendation per acre) into the amount actual poison per gallon. The answer will give you the number of acres one gallon of insecticide will cover.

EXAMPLE:

A farmer has bollworms in his cotton. The control recommendation is one-half pound of actual DDT per acre. DDT is formulated at 2 pounds per gallon: $\frac{2}{0.5} = 4$, therefore one gallon of DDT is sufficient to control bollworms on 4 acres of cotton.

The spray tank has been calculated on an acreage basis as given above. Take the acres per tankful and divide by the number of acres one gallon of insecticide will cover. The answer will be the amount of insecticide to put in the spray tank.

EXAMPLE: The spray tank has been found to hold enough mixture to cover 50 acres. One gallon of insecticide (DDT) will control 4 acres: $\frac{50}{4} = 12.5$ gallons of DDT should be put into the tank to cover 50 acres.

require a quart to a half gallon of 2,4-D containing 4 lb. acid equivalent.

The rates can be varied to fit the season. The higher rates should be used when the weather is getting hot and dry and the lower ones when the weather is good for plant and weed growth.

Randox applied as a pre-emergence broadcast spray should be used in a mixture of at least 20 gallons of water per acre. There should be 4 pounds of actual Randox acid (4 quarts of the concentrate) used per acre.

A complete list of weeds that can be killed or controlled with this early season spraying won't fit into this space, but here are some of them: bindweed, bull and Canada thistle, dandelion, dock, garlic, honeysuckle, morning glory and wild mustard.

In no case will the spraying take the place of cultivation; you still need it to aerate and break up the soil. It does make it possible for the farmer to omit the early, slow cultivations. Post-emergence spraying is more familiar to most farmers. It can be done as soon as the corn is 2 to 8 inches tall, and until it is 18 inches tall. Present Food and Drug regulations do not permit spraying after the corn is taller than this if it is to be fed to dairy or fattening animals. No drop extensions need be used; give the area a light broadcast spraying. Use fan or cone nozzles that apply 10 gallons of mixture at 35-40 lbs. pressure moving 4 m. p. h. The best temperatures for spraying are in the 70 to 90 degree bracket; the better the growing weather the better the weed kill will be. With corn at this stage use no more than one-half pound acid equivalent of the amine form of 2,4-D and no more than one-fourth pound of the ester form per acre. After spraying, the corn should not be cultivated for at least a week as the 2,4-D often makes stalks quite brittle.

As the corn gets a foot or more high the nozzle drops must be used to get the spray down between the rows and keep it off the corn leaves. The corn stalks are not damaged when they get a dose of spray. In all the late sprays, lay on the water to the maximum amount the sprayer will deliver.

Fertilizers and Insecticides, Too

Just about everyone has weeds, but the bugs you will deal with and the fertilizer requirements for your crop will vary throughout the country. The big plus that you can get from spraying is that you can add the materials to do these jobs on the same trip through the field. One Illinois farmer summed up his feelings on his sprayer's versatility this way. "I have to stop and figure out what my basic job is, killing weeds, bugs, or side-dressing the corn with fertilizer. I've added the weed and bug killing chemicals to the liquid fertilizers mostly. I can do 150 acres a day easily so I figure I'll specialize next year and use some of the sprays that just do one job."

The Tough Hombre

So far, Johnson grass has been one of the grasses that has been a die-hard in this chemical farming age. Many farmers have solved the Johnson grass problem by pasturing it, making hay out of it, or turning it into silage. Now four years of cooperative work between the USDA and the State of Georgia by Ellis W. Hauser and Jack T. Thompson at Experiment, Georgia, has turned up some hopeful news. Sodium dalapon is the chemical that is giving good control on the Johnson grass, which is a serious weed in 38 states. It is sold under the name Dowpon and is made by Dow Chemical.

In tests and experiments involving both fundamental and applied research, sodium dalapon (2,2-dichloropropionic acid), when used at proper rates and at the right times, was found more effective than any other herbicide tested. When it is properly used it can largely replace costly cultural practices to eradicate Johnson grass, which frequently require taking land out of crop production.

Basic greenhouse studies of the sodium salt of dalapon revealed that the chemical is effectively and consistently trans-located from Johnson grass foliage to the rhizomes (underground stems) of the weed. It also penetrates the foliage rapidly during the first hour after treatment.

The experimenters found that the chemical was absorbed more

Insect control on tall Delta cotton like this takes a high-clearance sprayer and lots of water in the spray mixture. Nozzles on drop extensions shoot the spray up on the undersides of the leaves as well as hitting the top of the plant. This Hi-Boy is operating at 8 miles an hour.

rapidly by Johnson grass plants when the pH of the spray solution was decreased (making the spray more acid).

Twelve field studies made at two different locations (Experiment and Plains, Ga.) showed that sodium dalapon sprayed on Johnson grass foliage at rates of 10, 15, and 20 pounds per acre gave effective control without injury to corn, cotton, field peas, and peanuts, if planting was delayed for 3 weeks after treatment, or 2 weeks following disking of the treated Johnson grass.

As a pre-planting foliage treatment on cropland, the chemical gave the best control of Johnson grass when applied at the rate of 15 pounds per acre.

The most striking results of the field studies were obtained from use of sodium dalapon to control Johnson grass on non-crop land. Applied as a foliage spray to the weed at the rate of 5 pounds per acre, followed by another application at the same rate 7 to 10 days later, the chemical gave 95 to 99 per cent control. In fact, the double treatment of light dosages proved to be far more effective than single applications of 20 to 30 pounds an acre. These results were obtained in experiments made in the spring and summer of 1957, when moisture conditions were highest.

A new development in the nozzle field is the ceramic nozzle (left). The entire center section of this nozzle is made of glass-like material that resists corrosion. Nylon nozzles will also be used this year. Spraying knee-high corn (below) is an effective weed-killing operation. Notice that the nozzles have been mounted on drops to put the herbicide on the ground and the lower stalk of the corn.

Worms, Hoppers and Bugs

Some of the insect pests that damage corn can be successfully outmaneuvered by the right planning and counter-offensive, ahead of time. Some, like army worms and chinch bugs, may have to be dealt with as rescue operations, if and when they attack your corn.

One of the best informed and experienced field generals in the battle with the insects is Stirling Kyd, extension entomologist at the College of Agriculture at the University of Missouri. On planning against soil worm and insect damage, Kyd has this to say: "Protection against insects is just like everything else—you get what you pay for. A seed treatment will protect the seed itself from injury by seed corn maggot and seed corn beetles. It will also

A gun sprayer attachment will put the aldrin or toxaphene mixture along the fence rows for easiest kill of grasshoppers, when they are young.

be of some benefit against a light infestation of wireworms, but will not give complete protection—even to the seed—against the pressure of a heavy infestation. Of course, as soon as the seed sprouts, a seed treatment gives no protection against wireworms, cutworms, rootworms, corn borers, or any other insect which might work the plant roots or stalk.

"We feel that the use of a soil insecticide on good corn land is one of the few instances where we can logically *prevent* insect damage rather than try to stop it. We think a farmer should consider it as insurance—just like hail insurance. In this case, however, it's insurance against insects taking out a stand of corn. Or, even worse and more common, taking out a part of the stand so that there isn't enough left to give a top yield, but too much to disk out. Again, as is true with hail insurance, the pay-off won't be the same each year since insect populations vary so much. Over a 5- or 10-year average, we believe it will pay dividends."

Continued Kyd, "We know of no way to tell whether or not wireworms or cutworms will be a problem on any piece of ground during any particular year. It seems foolish for a farmer to go to the trouble and expense of using a light dosage to stop rootworm damage, and then lose a good share of the stand to cutworms or wireworms. Consequently, we lump all soil insects together and suggest using 1½ pounds actual aldrin or heptachlor broadcast, or 1 pound in the row. And, incidentally, we prefer the broadcast application put on 10 days to two weeks before planting. Particularly with some of the newer planters, the insecticide-fertilizer mixture as a side-dress is put too far from the seed for best insect control.

"Keep in mind, however, regardless of whether granules or sprays are used, the insecticide must be disked in immediately after being applied broadcast."

"You will notice that our soil insecticide recommendations differ considerably from those of several other states—particularly Iowa. Our reasoning is this: We know it takes a broadcast treatment of at least 1½ pounds of aldrin or heptachlor to give good control on wireworms and cutworms. We also feel that these are the two most serious soil insects in our state, with seed corn maggots and seed corn beetles running a close second. Rootworms, in terms of total damage, would not be in a class with these other four under our conditions at least. Obviously, insects which completely eliminate a stalk and its ear affect yields more than insects which merely reduce the size of the ear."

The biggest above-ground headache of most corn farmers comes from the European corn borer. W. H. Luckman and H. B. Petty of the College of Agriculture, University of Illinois, have some valuable figures based on careful records kept on 83 farmers' cornfields. Borer counts on untreated parts of the fields showed the number of borers were three times as numerous as in the treated ares. Treatment saved an average of over 7 bushels of corn per acre; farmers made $3 for every $1 they spent on borer countrol.

Few of the first borers hatched out on young corn live to do much damage. The closer the corn gets to tassel stage the more damage they do. When the corn is 2 feet tall, a daily watch must be kept of the upper part of the plant and the whorl for the borer egg masses. A count of 50 egg masses in 100 feet of corn should be the time to start the first spraying. DDT is most often used, 1½ pounds actual chemical in lots of water, at least 15 gallons, should be applied to the acre. If you use a 25 per cent DDT emulsion concentrate, you will need 3 quarts in the 15 gallons of water. Speed of the application: about 4 miles an hour; pressure: 50 to 60 pounds per square inch; nozzles: 3 to a row, 1 on top, 1 on each side, aimed at a top third of the plant, cone-type, to get a volume of spray mixture into every fold and down into the whorl.

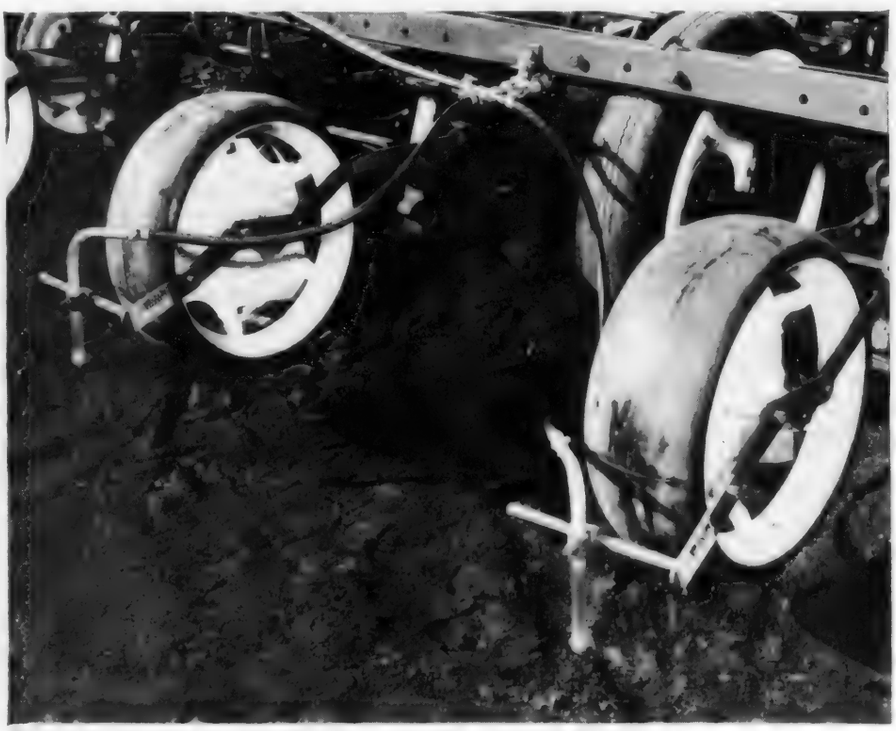
Second generation borer spraying can be timed to hit when the plants in the field have one or more egg masses on each plant and when the first of these eggs are found to be hatching. Direct the three nozzles to hit the upper part of the plant and ear zone. Most of the egg masses will be found to be on the top 5 to 7 leaves. The same pressure, volume and mixture of DDT should be used as in the first application. A high-clearance machine may have to be used for this application.

In all of these sprays keep in mind Food and Drug restriction on feeding the corn to dairy or fattening animals if sprayed after 18 inches high.

Record Held: Appetite

Since 1958 is forecast to be a big year for grasshoppers in several areas, control is worth detailing. To the zoologist the grasshopper is an insect of the first order of interest. A record high jumper, he can jump 10 times his length. A man with the same prowess could clear a five-story building with one jump. To the farmer he is the insect with a champion's appetite, and he doesn't eat Wheaties. Growing corn is his favorite energy builder.

Stirling Kyd gives this control program to kill Missouri hoppers, and if you can kill the "show-me" state's variety, you can lick any in the country. He says, "Get started early in the spring if your area is forecast to have an invasion. Try to kill hoppers



Pre-emergence sprays can be laid on the ground directly behind the planter, as is shown on tool equipped with nozzles (above). The wide rubber press wheels make a firm seedbed and allow the spray to make an even coverage of the soil surface, for the clods have been eliminated.

while they are still on the hatching beds. The eggs are laid in beds along fence rows, ditch banks, pastures or waste land and the young hoppers stay on the beds for several days after hatching. Be on the lookout for these beds during the spring and spray them immediately. Control is much easier to get and much less expensive if it is done early. It takes less insecticide to kill the young hoppers and much less area needs to be covered."

Use dieldrin at 1 ounce (⅓ pint of 15 per cent dieldrin emulsifiable concentrate) per acre, aldrin at 2 ounces (½ pint 25 per cent aldrin emulsifiable concentrate) per acre, heptachlor at 2 ounces (½ pint 25 per cent heptachlor emulsifiable concentrate) per acre, or toxaphene at 1½ pounds (1 quart 65 per cent toxaphene emulsifiable concentrate) per acre.

To control hoppers in the summer, use dieldrin at 1½ ounces (½ pint 15 per cent emulsifiable concentrate) per acre, aldrin at 4 ounces (1 pint 25 per cent aldrin emulsifiable concentrate) per acre, heptachlor at 4 ounces (1 pint 24 per cent heptachlor emulsive concentrate) per acre, or toxaphene at 2 pounds (2½ pints 65 per cent toxaphene emulsifiable concentrate) per acre.

Cotton's Friends and Enemies

Since the boll weevil illegally crossed the border from Mexico into Texas in 1892, he has won the doubtful distinction of becoming our most destructive American insect. Over $200 million loss a year is a well-calculated guess. There are songs, jokes, and even a monument erected to this long-snouted Cyrano of insects. In Enterprise, Alabama, the citizens inscribed the monument, "In profound appreciation of the boll weevil and what it has done as the herald of prosperity." There the citizenry felt the boll weevils' uncontrollable attacks had forced the region into other forms of agriculture, bringing greater prosperity than they had ever known in the cotton days.

With the development of modern poisons aimed specifically at the boll weevil, prosperity has returned for the cotton grower and his new found friends and protectors—the chemical companies.

But the chemical approach to cotton farming has not been devoted only to the boll weevil and other insects; there is a complete program of weed control, plus the added harvesting aids, defoliation and desiccation.

Weed Control in Cotton

The cost of weed control by hand-hoeing and the usual cultivation methods ranged from $11 to $18 an acre over a three-year period in one controlled test in the Delta area of Mississippi. Labor requirements were from 20 to 41 man hours per acre. Where recommended herbicides were used to control the weeds the cost of weed control ranged from $8 to $13 an acre and labor requirements were less than 8 hr.

Climbing weeds and matted grass can make it tough to pick sweet corn by hand. For mechanical pickers these weeds are a harvest headache.

per acre. The USDA reports that recent weed control studies in Mississippi have shown that the use of chemicals to control cotton weeds resulted in production gains of $23 to $25 per acre against cotton handled with conventional weed control methods. In 1957 over 350,000 acres were sprayed for weed control.

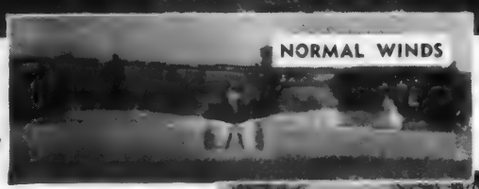
Pre-emergence Sprays

In the high-rainfall areas pre-emergence herbicides are effectively used to control many annual weeds in cotton. Diuron at .15 to .50 pounds per acre and CIPC at 1 to 3 pounds per acre, according to soil type, are commonly recommended. "Karmex" DL is the liquid suspension of the diuron herbicide formulated by DuPont. These rates are for band treatments of 12-inch width where row width is 40 inches. These materials are usually applied in 12 gallons of water per acre. The best results have been obtained on sandy loam to clay loam soils while marginal results have been reported on lighter and heavier soils.

According to Dr. John T. Holstun, Jr., agronomist, Crops Research Division, USDA, at the Delta Branch Experiment Station, Stoneville, Mississippi: "For pre-emergence spraying we recommend 80 to 95 degree fan-type nozzles. The proper

(*Continued on page* 86)

Hanson makes winds work for you "Swath-o-matically"



Hanson
Swath-o-matic
Brodjet

Now, you can take advantage of the wind by *always spraying with it, never against it!* Hanson "Swath-o-matic" Brodjet does it all for you automatically. When operating in strong side winds, you can spray to either side of your tractor with swaths up to 40-feet. Or in normal or head-wind, tail-wind conditions, you can spray to both sides with swaths up to 68-feet. Photos above illustrate.

It's FIVE farm sprayers in ONE, too!

You'll also like the outstanding versatility of the Hanson "Swath-o-matic" Brodjet — actually handles every job in a complete, year-round spraying program. A few are shown at right. This popular sprayer, less pump kit, costs only . . .

$79.50
F.O.B. Factory

Hanson
E-Z Spray

. . . a complete trailer, pump kit and boom sprayer, featuring . . .

ceramic nozzles!

Here is the kind of spraying dependability for which Hanson is famous, at a price you just can't beat. Included are Hanson's new *ceramic nozzles* with truly amazing resistance to wear and corrosion; semi-automatic, 8-way control; 3-section boom; nylon-roller pump kit; and all-welded trailer with roller-bearings.

Complete **$199.50** F.O.B. Factory

Hanson
HANSON EQUIPMENT COMPANY
2938 Charles St., Beloit, Wisconsin
Rush details about Hanson equipment to:

Name_____
Address_____
Post Office_____ State_____

Free! Spraying Charts!

(*Continued from page* 85)

rate of application is obtained by selecting the right size orifice (nozzle tip) for the field speed of the sprayer, and by adjusting the pressure (from 20 to 40 psi).

"A wide flat press wheel is used in the planting operation if post-emergence applications are planned, as this gives a better shaped seedbed than the regular planter press wheel.

"Basic equipment is similar to that used in applying liquid insecticides and consists of a tractor shaft-driven pump, strainers, pressure regulator, gauge, fan-type nozzles, tank for herbicide and suitable hose for connections. Most 1, 2 and 4-row planters can be adapted for this spraying. The nozzle is located to the rear of the planter press wheel or extra roller and at the proper position to cover a 12-inch bed centered on the drill.

"Pre-emergence spraying is done at the time of planting, which should be in a firm settled seedbed prepared at least two or three weeks in advance of planting. Spraying can be expected to control troublesome annual grasses, crabgrass, pigweed, morning glory, etc., for from 4 to 6 weeks. It will not control perennial weeds."

Much of the mechanized weed control in cotton in recent years has been done by flame thrower cultivation. This necessitates waiting until the cotton has attained a stem diameter of at least 3/16 of an inch in diameter. Weed control before this point has been by hoe in the past. Now pre-emergence herbicides and certain post-emergence oils can do much to reduce the hoeing during this period.

Dr. Holstun feels that post-emergence spraying for weed control would be more generally used by farmers if they would master the technique. It is both effective, he says, and inexpensive. The herbicide oil, such as Lion Oil No. 1, Cities Service Oil No-Weed No. 1, Esso 38, etc., costs only about 25 cents per gallon. He figures it "costs about $2 per acre to spray with one of these oils and cultivate at the same time."

The oil should not strike the young cotton stalk higher than a 1-inch level. Various types of parallel-action shoes or shields are used as gauging carriers for the spray nozzles, controlling height of placement. Shields and nozzle setting must be adjusted to give application of oil at proper level to avoid injuring the young cotton, and must be adjusted by the farmer in the field. One nozzle should be used on each side of the row and each nozzle should be 5 inches from the row center. Nozzles should be set so that the spray fan is horizontal, giving adequate coverage of weeds in the 8 to 10-inch band centering on the row.

Nozzles used are fan-type nozzles, such as Spraying Systems Teejet 8001, used with pressures ranging from 15 to 35

NEW! 20-YEAR COMPARISON REVEALS SURE WAY TO CUT FARM UPKEEP WITH WOOD

Latest progress report on one important study by United States Department of Agriculture shows these actual results after 20 years:

out of 98
untreated pine posts . . .
98 failed within 6 years

out of 95
creosote-treated pine posts . . .
88 are serviceable

out of 98
Penta-treated posts . . .
97 are still going strong

*

ACTUAL ON-FARM EXPERIENCE IS SHOWING THAT PENTA PRESSURE-TREATED WOOD GIVES YOU 4 TO 5 TIMES LONGER SERVICE THAN THE SAME WOOD UNTREATED . . . OUTPERFORMS THE SAME WOOD TREATED WITH OTHER PRESERVATIVES . . . CUTS YOUR REPLACEMENT COSTS BY SAVING TIME, WORK AND WOOD!

See where you can benefit from clean Penta-treated wood around your farm.

NEW POLE-TYPE BUILDINGS don't need costly foundations or footings . . . are easier to build and you save about half the cost of ordinary farm structures. Poles and lumber treated with Penta last 30 years and longer, save you two or more building replacements . . . and they're clean. Penta won't make a mess of clothing or harm livestock.

PENTA-TREATED POSTS save cost of replacing fences 3 times in 20 years . . . outlast untreated posts 4 to 5 times in 30 years . . . are the most durable you can use. Penta "vaccinates" wood against dry rot, decay, termites and other wood-boring insects . . . gets down into wood cells and stays there. Rain or ground water won't wash Penta out. Sun and heat won't boil it away. Clean Penta-treated posts are easy to set, too, because Penta won't "burn" hands.

CLEAN PENTA-PRESERVED WOOD can cut your upkeep time and costs on hog troughs, hayracks, sheep and cattle feeders, windbreaks, brooder-house floors, chicken roosts, window sills, scale platforms and corncribs. Won't harm farm animals or poison their food. Needs no protective sealers or weatherproof coatings.

WHERE TO GET PENTA-TREATED WOOD

Dealers for Penta-treated wood display this symbol. Look for it in your area. For your Grange meetings and other club programs, "OLLIE GRUBER AND THE MOST IN POSTS" is a 20-minute color and sound movie that's entertaining and informative. Write Monsanto about it today.

***See more details! Write Monsanto for a summary of U.S.D.A. Progress Report No. 1737 plus how-to-use information about Penta-treated wood.**

MONSANTO CHEMICAL COMPANY
Organic Chemicals Division, Dept. FQ-1, St. Louis 24, Mo.

Monsanto

WHERE CREATIVE CHEMISTRY WORKS WONDERS FOR YOU

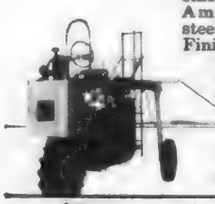
Farmhand-Kromer ...for best results on weed control and fertilizer application!

TRACTOR-MOUNTED BOOM SPRAYER covers both sides of your row crops effectively. Use it for pre-emergence spraying too. Booms tapped every 10" for exact nozzle spacing. Wide angle spray of larger droplets for better kill is effective even in windy weather.

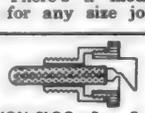
TRAILER SPRAYERS are complete units, ready for action in seconds. Ideal for all spraying jobs; the Farmhand-Kromer trailers are available with own tanks or with barrels. Booms are 1" dia., fitted with Kromer wide angle nozzles for more uniform spraying. Deluxe models with Finish "X" tanks and booms are guaranteed against corrosion.

THE BROAD FAN BOOMLESS SPRAYER is a low-cost, high speed, general purpose sprayer just right for weed control and fertilizer application. It gives a uniform spray swath of up to 50' at a low angle. Equipped with the precision-built Farmhand-Kromer Broad Fan Nozzle.

FARMHAND-KROMER Hy-Row self-propelled power sprayers are your best crop insurance from pre-emergence to harvest. Ample power, easy steering, large capacity Finish "X" tanks and booms, plus many new operational and safety features. The finest self-propelled sprayers made. There's a model for any size job.



PATENTED Broad Fan Nozzle gives uniform coverage over 50' swath. Easy to clean, aluminum and stainless steel.



NON-CLOG Fan Type Nozzle maintains its rated capacity and spray angle longer than any other nozzle. Easy to clean.

FREE INFORMATION!

Write: THE FARMHAND CO.,
Dept. FQ-18, Hopkins, Minn.
Send information on_____type of sprayer
I am a student, send special material ☐
Name_____
Address_____
Town_____ State_____

A Division of Superior Separator Company

Farmhand
FIRST IN FARM MATERIALS HANDLING

pounds at speeds of 2 to 5 miles per hour. Proper rate of application is attained by a combination of adjustments in speed, pressure and nozzle size.

The first application may be made when the cotton seedlings are about 3 inches tall, provided weeds have appeared in the drill area. (Weeds larger than 2 inches in height are not satisfactorily controlled.)

If cotton is less than 3 weeks old, 5 to 7 gallons of oil per acre may be applied for the first application. After 3 weeks, or first application, no more than 5 gallons per acre should be applied at any one time. Applications should be repeated as needed except that they should be at least 5 days apart—a total of no more than 3 applications should be made; no oil should be applied after the bark begins to form.

While a man with a hoe still seems to be a necessary part of the cotton field, the day is coming when "choppin' cotton" can be just a song.

Killing the bugs that bother cotton has taken on all the elements of all-summer-long chemical warfare, with some of the operators suffering nearly as much as their foes. Some of the poisons used are so deadly that the Mississippi Aeronautics Commission has published a safety manual for duster pilots. Last year some pilots suffered headaches, dizziness, distorted vision, and hallucination after contact with some insecticides. The manual lists Mississippi hospitals giving blood tests to determine over-exposure. The uses of respirators, goggles, helmets and gloves are detailed.

There is considerable evidence to the effect that the sprayer with its nozzles just above or down in the cotton rows is the safest weapon for the average farmer to use in the battle with cotton insects, particularly if the spraying is done *back* of the tractor. The airplane will, as in the past, continue to be the life-saver for many fields. Its speed and its ability to operate when fields are too wet for tractor spraying are its great advantages.

Cutworms and Thrips

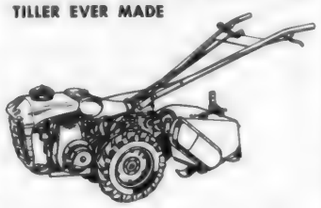
The young cotton plant is easy prey for the cutworm. If these slate grey pests are turned up by plowing sod or if their presence is suspected, it's safer to poison them well ahead of planting time as is done in corn fields. Use 1½ pounds actual aldrin or heptachlor and disk into the ground 10 days to 2 weeks ahead of planting.

Early season-control of thrips helps cotton grow vigorously. Thimet (American Cyanamid Co.) is a chemical used as a systemic insecticide and will usually give 4 to 6 weeks protection to the young plant. The seed is treated at the rate of 1 pound for each bushel of seed, depending on whether the seed is reginned, acid delinted, or fuzzy. This first commercial systemic insecticide is the spectacular beginning in this new field of plant chemistry. As the plant grows, the insecticide is taken from the seed coating into the sap stream,

When time means money . . professional gardeners choose

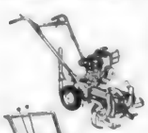
Ariens MULTIMATIC

THE MOST VERSATILE ALL-PURPOSE TILLER EVER MADE



Speed up every tilling job with Ariens deluxe MultiMatic — the most versatile . . easiest operating . . . most perfectly balanced 16" tiller made. Non-slip differential ends wheel slippage . . . provides power steering, turning. Exclusive 2-speed, 2-direction operation for use with front or rear-mounted Insta-Hitch attachments. Like the STANDARD MultiMatic (a 16" single-purpose tiller) it has a Kohler 3.6 h.p. engine; streamlined hood; 4:00 x 8 pneumatic tires. Forward and reverse speeds: .7 to 2.5. When time means money — use Ariens MultiMatic!

NO ONE BUT ARIENS MAKES SUCH A COMPLETE LINE OF TILLERS!



Ariens JET — New! Made for Just Easy Tilling. Tills 8" to 20" wide. For home gardeners!

Ariens YARDSTER — Self-propelled, 12" tiller with 2-speed wheel drive; year 'round attachments. For home gardeners!

Ariens TRANS-A-MATICS—For heavy duty tilling. Two models for 20" or 28" tillage.

Write for free literature.
Dealer inquiries invited.

Ariens

117 Calumet Street, Brillon, Wisconsin

for TOUGH plowing

THAT'S WHY **LANTZ®** The Original Lantz Kutter-Kolter

is your BEST Coulter buy

It's when the plowing gets tough that the Lantz double-slicing action gives the most help . . . and when trash covering isn't a problem, simply remove the disc blade assembly and you have a single-blade coulter second-to-none.

New Model B LANTZ Coulter

Here's the latest adaption of the famous 2-Blade principle for plows with limited clearance.

WRITE TODAY for full information on the entire Lantz Coulter line designed to meet every plowing and covering condition.

LANTZ Manufacturing Co., Inc.
Dept. 101-H Valparaiso, Ind.

spreading throughout the stem and leaf area and giving protection from within against the insects that attack the plant.

Thrip control in the growing plant (where the systemic has not been used) begins at the stage when the first pair of leaves appear. The same poisons as recommended for boll weevils are usually used at ½ to ⅔ strength.

The common early season pests that come along, up to the time when the cotton begins to put on squares, are fleahoppers, boll weevils, bollworms, and tarnished plant bugs. They damage these early squares (pinhead size) and once they turn brown and drop from the plant that part of the cotton plant is lost forever. Three sprays at 5 to 7 day intervals insure early fruiting and reduce the overwinter boll weevils and other pests.

Chemical recommendations for these sprays vary from state to state but the 1957 season showed that lots of water—15 to 20 gallons—was the key to making sprays effective. In the past, recommendations on the water carrier for sprays was often too low because the farmer had small pump capacity and inconvenient water outlets around the farm. With the advent of long rolls of plastic pipe which can be easily laid around the farm and to the fields with the Massey-Ferguson tractor pipe-laying tool, this bottle-neck in spraying is being removed.

Refer to your own state spray recommendations for area information. Here are chemicals and actual quantities most used: Toxaphene, 2 to 4 lbs. with DDT 1 to 2 lbs. per acre; Toxaphene 2 to 4 lbs. per acre; Heptachlor ¼ to ½ lb. and DDT ½ to 1 lb. per acre; Endrin ¼ to ½ lb. per acre; Dieldrin .15 to .5 lb. with DDT ½ to 1 lb. per acre; gBHC .10 to .45 lb. with DDT ½ to 1 lb. per acre; Aldrin .15 to .75 lb. with DDT ½ lb. to 1 lb. per acre; Methyl Parathion .25 to .75 lb. with DDT ½ to 1 lb. per acre; Malathion 2 to 3 lb. with DDT ½ to 1 lb. per acre; Guthion .25 to .50 lb. with DDT ½ to 1 lb. per acre. DDT is specific for bollworms. Follow directions and note that Methyl Parathion and Guthion and others are high-powered poison. Know by heart the precautions in their use. Have a welded hanger for a 5 or 10 gallon container of pure water on each tractor for instant wash-off if chemicals get on the operator during fill-up or clean-up. Insist on the use of plastic or rubber gloves.

The strength of chemicals is detailed in state recommendations but from the early season to mid-season to late season the boll weevils become more difficult to kill. There is increasing belief among entomologists that boll weevils are becoming resistant to chlorinated hydrocarbons in some areas. In any case, the quantity of actual chemical used steps up throughout the season. For instance, with toxaphene (8 lb. per gallon) the early season recommendation is 1¼ lb. per acre, mid-season

Introducing the New 1958 HAHN SUPER HI-BOY®

SELF-PROPELLED HIGH-CLEARANCE SPRAYER AND DUSTER!

• More farmers bought HI-BOY in '57 than all other comparable makes combined!

• More than ever YOU wisest buy in '58 . . . with 35 profit-boosting improvements!

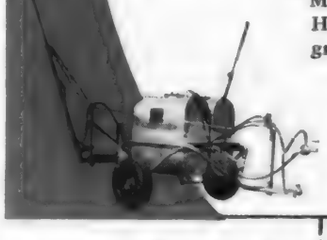
CORN GROWERS REPORT NEW RECORD YIELDS through more complete kills with HI-BOY!

Now, you can profit by all the farm-proved advantages of the *original and only* HI-BOY — most efficient control, power, and speed pound for pound than offered by any other high-clearance sprayer — PLUS still more brand-new advancements including:

New Improved 8-Row Boom that is stronger — stays level in roughest going. Both booms and tanks are of *rustproof aluminized steel* — no nozzle clogging! *New "live" pump drive* assures instant spray pattern, accurate application at row ends, *maximum killpower.*

New 4-Row Topper (optional) tops as many as 100 acres of corn per day, prevents lodging, and is ideal for cutting tall weeds out of soybeans to speed combining. The HAHN SUPER HI-BOY for '58 gives you greater-than-ever ruggedness, easy and sure-footed maneuverability unmatched by any similar rig. AND it's excellent for *fast application of liquid fertilizer.* Add the many more advantages offered only by the '58 HI-BOY . . . you'll hardly settle for less than the leader in its field!

Mail coupon now for full information about the new HAHN HI-BOY for '58 — great for corn, small grain, beans and almost all other crop protection!



NEW TWIN-TANK HAHN TRAILER SPRAYER . . .

Fine for applying liquid fertilizer — one of a complete line of HAHN Farm-Proved tractor and trailer sprayers.

MAIL COUPON NOW FOR YOUR NEW FREE GUIDE TO TOP SPRAYER VALUES!

HAHN HI-BOY
THE HI-SPEED SPRAYER

HAHN, INC. 1825 W. FRANKLIN ST. DEPT. Q-3 EVANSVILLE 12, IND.

Send me my personal copy of the new 1958 Hahn Farm Sprayers Buying Guide:

NAME.....

ADDRESS.....

.....

NEW 1958 CENTURY TRAILER SPRAYER costs less than most tractor-mounted New NYLON NOZZLES handle all chemicals; are standard on A-2 (shown above) and new A-3 heavy duty 3-section boom sprayer. Available mounted on tractor, trailer or skid—up to 10-row booms.

CENTURY'S full line includes "Power-Jet," high clearance and hand gun sprayers, engine pump units and plastic lined tanks. Write for catalog and name of dealer.

CENTURY Engineering Corp. Dept. 116-B Cedar Rapids, Iowa

DID YOU SAY **80** GALLONS PER MIN. (AT 600 RPM) ?

Hypro 2" pump

for liquid transfer, water hauling & irrigation

fits directly on your tractor PTO

Yes! and only **$69.50** (F.O.B. factory)

Write for complete pump catalog

Hypro *Engineering, Inc.*

700 39th Ave. N.E. Minneapolis 21, Minn.

NAME_____

ADDRESS_____

Complete Selection **SPRAY NOZZLES'** and all fittings

for the Best in Performance!

To get the most from your equipment and chemicals be sure that your sprayers are equipped with TeeJet Spray. Nozzles and such related products as TeeValves, pressure regulators, connectors, jet agitators and strainers.

For information write for your free copy of Bulletin 73.

YOUR CHOICE OF OVER 400 INTERCHANGEABLE ORIFICE TIPS TO GIVE YOU THE EXACT VOLUME, SPRAY TYPE AND ANGLE YOU REQUIRE

- ConeJet® cone spray Tips—for insecticide and defoliation sprays.

- Flat Spray Tips—for pre-emergence spraying, general weed control, defoliation and flame cultivation.

- Disc Type cone spray Tips—for spraying insecticides containing suspended solids.

- Precision Orifice Plates—for metering flow of soil fumigants and liquid fertilizers.

SPRAYING SYSTEMS CO.

3258 RANDOLPH STREET • BELLWOOD, ILLINOIS

is 2 lb. and late season is 3 lb. because the plant area is greater and the boll weevils are tougher.

Going down the rows from the pre-emergence weed sprays through fall defoliating sprays many a cotton grower found by the end of the season that he knew every cotton plant by its first name. He had made 18 to 20 spray trips over the field!

How to tell when a spray should be applied? Most state entomologists have their own ideas for making boll weevil infestation counts. There is the 5-point method, the crisscross method, the scattered row count. The important point is to get a sampling of several areas of a field. When 25 per cent of the squares examined have been punctured by boll weevils under normal weather conditions, or when eggs and 6 bollworms are found per 100 plants, you'd better wheel out the sprayer and get under way. Repeat the spray at 5-day intervals as often as necessary to get control. During the late season migration of boll weevils, lay on the heaviest chemical amount recommended —every 3 or 4 days. Spray until the youngest bolls are about 20 days old. Then the plant has made most of its growth.

If ground rigs are used all of the late applications and the defoliant application in tall-cotton country will have to be made with a high-clearance machine. Equipped with fenders and a variety of nozzles these sprayers can work cotton the entire season.

Machine picking quickened the development of the harvest-aid chemicals, defoliants, and desiccants. A defoliant chemical causes the plant to shed its leaves. A desiccant chemical causes rapid drying of the leaves but with little or no leaf drop. However, abnormally high rates of defoliant application can also act as a desiccant. The problem of giving any widespread recommendations for either a defoliant or a desiccant is complicated by climate and method of picking. In the long run the individual cotton farmer will use the one (and even the brand of chemical) that has worked best in his area. Chemical defoliation is used more frequently than desiccation; the job growers want the chemical to do, is to cause the plant to drop its leaves so the machine will harvest the cotton efficiently and the cotton will be as free from trash as possible.

The cotton is undressed with defoliation-sprays when 50 to 60 per cent of the bolls are open, and when there are adequate moisture conditions. With rank growth the plant has to be encouraged to shed its leaves so picking can be done before boll rot sets in. To control second growth a relatively new chemical (1955), amino trizole (Meeno and 3-A.T.) is often used along with the regular defoliant. This permits a complete harvest of the crop and a second picking without new leaves interferring with the operation. Use ¾ lb. of Meeno with half the usual amount of defoliant chemical.

"So Far Ahead There Is No Comparison"

Says Ray Teschler about his new

CHORE-BOY HERRINGBONE SYSTEM

Here is A Partial List Of

CHORE-BOY HERRINGBONE SYSTEM Users

(December 1, 1957)

(Systems in use or being installed)

Foster Bros., Middlebury, Vt.
Roland Gerrais, Enosburg, Vt.
Carroll Stanby
Enosburg Falls, Vt.
L. E. Maxfield,
North Hartland, Vt.
Theodore S. Gold,
W. Cornwall, Conn.
Adolph Englebrecht,
Munnsville, N. Y.
LeRoy Camp,
New Berlin, N. Y.
Clifford Hartong,
Hockelstown, N. J.
George Graham,
Plain Grove, Pa.
Clark Farms, Ennon Valley, Pa.
Ray Judy, Millen, Ga.
Monastery of The Holy Ghost,
Conyers, Ga.

Eugene Hawk,
Bakersville, Ohio
Clarence Neal, Peebles, Ohio
Henry Wilcox, Lewisville, Ohio
Dwight Coffman,
Farmersville, Ohio
Myers R. Deel,
Williamsburg, Ohio
C. M. Reasor, Hamden, Ohio
Raymond Grant, Jackson, Ohio
Robert Lange,
North Star, Ohio
Lyle Austin, Hogsett, W. Va.
James Suck,
Ravenswood, W. Va.
Ray Teschler, Richmond, Mich.
Spencer Bros., Armada, Mich.
Miller Bros.,
Eaton Rapids, Mich.
Donald & Dean Hasenick,
Springport, Mich.
Gaylord Baum, Parma, Mich.
Seymore Thompson,
Jackson, Mich.
Leonard Pung, Lansing, Mich.
Keith Cool, Kalamazoo, Mich.
Buckland Bros., Richmond, Ind.
George Hinshaw,
Fountain City, Ind.
Hoyt Vanderbeck,
Cambridge City, Ind.
Arthur Klein, Milton, Ind.
Roscoe Tompson,
Cambridge City, Ind.
William Hill, Straughn, Ind.
Orland Golay, Lewisville, Ind.
Marion and Clyde Pearson,
Brookville, Ind.
Max Harmon, Leesburg, Ind.
Marshall Sickels,
Winchester, Ind.
Roy Sponhower, Auburn, Ind.
Dwight Carnahan, Butler, Ind.
Lynn Fuller, Butler, Ind.
Nelson Newell, Maysville, Ky.
Everett & Bunch,
Cave City, Ky.
John W. Weddle, Liberty, Ky.
H. W. Roberts, Jr., Clinton, Ky.
Frank Hill, Murray, Ky.
Peter Coop, Collierville, Tenn.
Rufus H. Riggan,
Lebanon, Tenn.
Robert Sutherland,
Goodlettsville, Tenn.
B. S. Marler & Sons,
Cliftonville, Miss.
W. E. Blades, Kentwood, La.
Perkins, Ward, Ark.
Omar Yoder, Tuscola, Ill.
Allie Niemburg, Dietrich, Ill.
Elmer Helgeson,
Monticello, Wis.
Normal Rule, Dodgeville, Wis.
Bruce Russell,
Mineral Point, Wis.
Herman Severson,
Cameron, Wis.
Donald Fiegel, Kasson, Minn.
Raymond Korinek,
Campbell, Minn.
Carlet Hoff, Fergus Falls, Minn.
Lester Wilcox, Erhard, Minn.
Weibe's Dairy, Beatrice, Nebr.
Abram Thut, Elmdale, Kan.
Harlan Berry, Mayfield, Kan.
L. L. Broom, Floreville, Texas

Karl's Farm Dairy,
East Lake, Colo.
Leo Hamilton, Merced, Cal.
John Bos, Boseman, Mont.
Andrew Craven,
Eberts, Ont., Canada
B. Schroeter,
Brenner, Alberta, Canada

The double row of 6 Chore-Boy Herringbone stalls shown above is in use on the Ray Teschler farm, Richmond, Michigan. The system enables one man to handle 6 milker units, so that 60 cows per hour can be fed and milked. It is ideal for loose housing of cows.

Dairymen Everywhere See The CHORE-BOY HERRINGBONE As The Answer To Their Problems

Just six months ago the new Chore-Boy Herringbone System of handling, feeding and milking cows was announced to the dairy world. The response has been tremendous. Progressive dairymen recognize in this revolutionary new development the answer to many of their problems. Chore-Boy Herringbone Systems are rapidly being put into use in all parts of the country.

Users are learning that they can milk up to 60 cows per man and do it easier than when they formerly milked only half as many cows. By handling more cows they increase their incomes. They find that cows like this system and quickly adjust themselves to the Herringbone stalls.

Chore-Boy's low-vacuum milking helps eliminate a major cause of mastitis. Cows produce more and better milk and have better udder health. Automatic feeding saves time and feed. The entire system is easy to keep in a clean and sanitary condition.

To answer any questions you may have concerning the Chore-Boy Herringbone System we suggest that you visit one or more systems in actual use. For your convenience, a partial list of users is shown in the column at the left.

Chore-Boy pioneered the Herringbone System in America and is the only company which manufactures the complete system, stalls, feeding mechanism and pipeline milkers. See your Chore-Boy dealer or write for full information.

CHORE-BOY
LOW-VACUUM
MILKING SYSTEMS

Write Dept. 11 for complete information

Profitable dealerships available

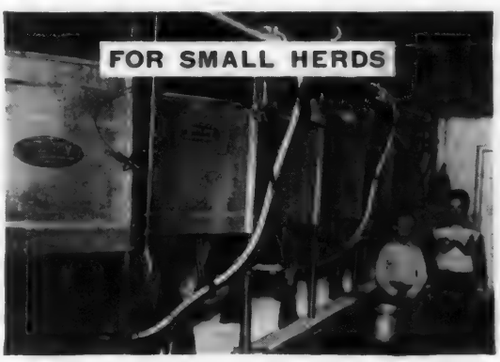
FARMER FEEDER COMPANY, Inc., Cambridge City, Indiana

MR. RAY TESCHLER, Richmond, Michigan, writes —

"I started using my new Chore-Boy Herringbone Milking System, consisting of 2 rows of 6 stalls, in November. Results have exceeded my expectations. This system is so far ahead of any other method there is no comparison. After one week we were doing so well I bought an additional herd. We now milk our enlarged herd faster and easier than when the herd was half the size. I doubted my ability to handle 6 milker units but am now certain it can be done. I like Chore-Boy's low-vacuum milking and master pulsation. My cows milk faster and better than they did with high vacuum. They stand better, let down milk faster and milk out cleaner!"

The Chore-Boy Herringbone Milking System lends itself well to dairies where cows are housed in stanchion barns. Such an installation shown above is on the Foster Brothers' Farm, Middlebury, Vt. Their system consists of 2 rows of 6 stalls with 6 Chore-Boy milker units.

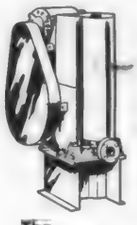
The Foster Brothers write as follows: "We have used our milking parlor about 3 weeks and are pleased the way the cows have adjusted themselves to the new surroundings. The parlor is a pleasant place to milk, easy to keep clean and the 12 cows in such a small area keep it warm. We are now milking 83 cows."



"My Chore-Boy Pipeline and Herringbone Parlor has made our chores so easy and fast that my 10 and 12 year old boys often do the entire milking and chores alone, allowing me to do other necessary work. Milking is now a pleasure instead of a chore," writes Ray Korinek of Campbell, Minn. Ray's system consists of a single row of 6 stalls with 3 milker units. Chore-Boy Herringbone stalls may be used with small, medium or large herds.

No Matter What Your Needs . . .

There's an AERMOTOR Water System To Fill Them . . . Exactly!

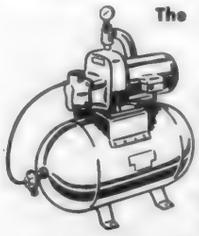


The Deep Well PUMP

A *proven* performer! Offers extreme adaptability—high capacity and depth ratings. Deep Well capacities to 4950 gallons per hour—depths to 730 feet!

The Submersible PUMP

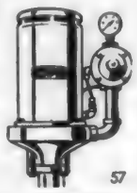
Installation in well eliminates pump house or pit—ends maintenance worries. Exclusive stage design increases efficiency—lowers power bills. Depths to 500 feet—capacities to 850 gallons per hour.



The "Bud-Jet" PUMP

Priced so low you can afford two! Use one for home water supply—another for barn . . . poultry house or yard work. Shallow and Deep Well models available.

The "VJ" SERIES PUMP



Aermotor's newest! Patented feature cuts installation labor time in half! You get a tailor-made job at a ready-made price! Shallow or Deep Well models available.

57

AERMOTOR

Free! 44-page illustrated booklet "How to Choose Your Water Pumping System." Address post-card to:

AERMOTOR COMPANY

2500 W. Roosevelt Rd., Chicago 8, Ill., Dept. FQ-3

Desiccants are used when an all-at-one-time picking is the aim. Of course, hand snapping can be employed afterwards to clean up the field. The best time for desiccation is usually pegged at the point when 75 per cent or more of the bolls are open.

Unsatisfactory results from attempts at defoliation are frequently due to poor application, according to Dr. Robert O. Thomas, Physiologist, USDA, at the Delta Branch Experiment Station, Stoneville, Mississippi. Common sources of trouble include application of dust defoliants in windy weather, airplane application of spray defoliants in which total gallonage and size of droplets are not adequate for good coverage. For plants up to 5 feet in height, 5 to 8 gallons total spray per acre are needed in applications by airplane and 12 to 20 gallons by ground machine. Nozzles giving large droplet size provide the best spray distribution. In studies at the Delta Branch Experiment Station, best coverage by ground machine on 3- to 5-foot plants was obtained using a single, high gallonage, flood-type nozzle located 12 to 18 inches above the plants in each row. On taller plants with dense foliage, an accessory flood nozzle placed behind an adequate shield down in the row middle was found necessary to insure spray coverage of lower leaves.

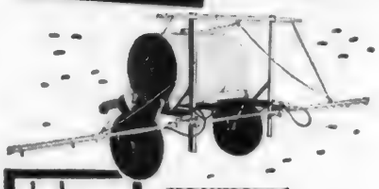
Cotton defoliants are available under a wide variety of trade names but only a few chemicals are used as active ingredients. "Aero Cyanamid, Special Grade" is a dust formulation containing calcium cyanamide. "Shed-A-Leaf D" is a dust formulation containing sodium chlorate plus a fire retardant. "Shed-A-Leaf L", "Fall", Stauffer "C.B.", and "Ortho Defoliant" are examples of spray formulations of sodium chlorate plus a fire retardant. "De-Fol-Ate" and "Magron" are spray formulations of magnesium chlorate. "Folex" is a spray formulation of tributylphosphorotrithioite. "DEF Defoliant" is also a spray formulation of this chemical.

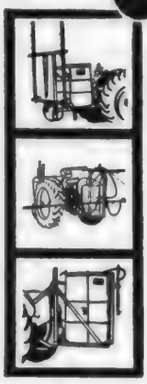
Choice of dust or spray depends on plant condition, weather, equipment for application, and previous experience of the applicator. Use of a dust is an advantage where plant growth is so rank that getting satisfactory spray coverage is difficult. However, weather must be calm for good dust application and dews are required to get the active material into the leaf. Calm weather is not required for good spray application but getting coverage on all leaves is a definite problem when plants are large and leafy.

Some of the manufacturers of chemicals used for defoliating are: "Shed-A-Leaf L", made by Chipman Chemical Co.; "Fall", made by Chapman Chemical Co.; "Stauffer Chlorate", made by Stauffer Chemical Co.; "De-Fol-Ate", made by Pennsylvania Salt Mfg. Co.; "E-Z-Off", made by General Chemical Div., Allied Chemical and Dye Corporation; "Magron", made by The Dow Chemical Co; "Meeno", made by the American Chemi-

LARSON

complete line of dependable quality-built





SPRAYERS and SPRAYING EQUIPMENT

Trailer, Tractor-Mounted, and Utility "All-Purpose" Units — Before you buy sprayers and spraying equipment, check LARSON'S *complete line* first!

Here is spraying equipment at its best—sturdily made—soundly engineered — and economy priced! And LARSON has just the sprayer for your *particular* needs. There are tractor mounted, for either front or rear; trailer type, both heavy duty and standard; barrel carriers, regular for all tractors and special for IHC Quick-Hitch; utility "all-purpose" sprayers; special pumps for everything; and a complete line of fertilizer-insecticide-weedicide applicators.

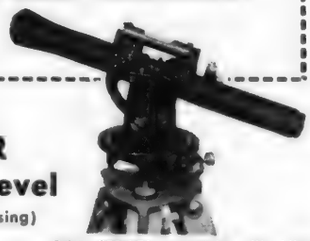
Write today stating your needs. FREE literature sent promptly. Or see your LARSON dealer.

Engineered and Manufactured by:

LARSON MACHINE CO.

PRINCEVILLE, ILLINOIS

SIMPLIFIES EVERYTHING FROM CONTOUR FARMING TO FARM BUILDING!



BERGER Farm Level

(Internal Focusing)

Price $89.75*, complete with kiln dried white ash tripod, carrying case and instruction manual. *F.O.B. Factory

First time you put this easy-to-use Service Transit-Level to work you'll see why it's so popular with farmers. Use it for determining lines and grades for contour farming, straight crop rows, snow fences, aligning stone walls, laying agricultural tile and cranberry bogs. Indispensable for erecting farm buildings, planning house connections to sewers, drainage ditches and scores of other 'round-the-farm uses.

Note the erecting *internal focusing* telescope—with rack and pinion adjustment—that makes sighting so easy—image is right side up. Fixed cross hairs in eyepiece of 10-power telescope simplify focusing. Simple telescope lock quickly makes the instrument a level. A 360 degree horizontal circle with index, is graduated to single degrees in quadrants. Positively centered 3" diameter arc reads directly to single degrees. Bearings are dust-protected. And its rugged construction means years of trouble-free service—typical of the superior quality Berger has put into its instruments since 1871.

For FREE BROCHURE, Mail Coupon

C. L. BERGER & SONS, Inc., Dept. FP
37 Williams St., Boston 19, Mass.

Name .....

Address .....

City ..... State .....

cal Paint Co.; "3-A-T.", made by American Cynamid Co.; "Folex", made by Virginia-Carolina Chemical Co.; "DEF Defoliant", made by Chemagro Corporation.

In desiccants they are: "Golden Harvest Crop Dryer", made by Chapman Chemical Co.; "Stauffer Penta Concentrate", made by Stauffer Chemical Co.; "Leaf Dry", made by Associated Sales and Supply Co.

With the growth of the farm sprayer as a tool for fertilizing as well as spraying

(*Continued on page* 162)

IRRIGATION—BY TRICKLE OR SPRINKLE

(*Continued from page* 68)

had read over my rental contract they would have said that I was nuts, but I'm dealing with people, not contracts. And finally, gated pipe had come in so I knew that I could forget about open ditches and I wouldn't have quite the cost for land leveling that I would have had with ditches and siphon tubes."

After the corn was harvested in 1956, Nehrig and a couple of the technicians from the county Soil Conservation Service office hauled a transit and stakes out to the farm and laid out the leveling work. With stakes in place showing the cuts and fills to be made, big earth-moving equipment moved onto the land. When they had done their job, 75 acres of corn land was gently sloped for gravity irrigation. In 1957 another 25 acres, which had been planted to rye to mellow the soil, was staked and shaped.

Not a length of the original sprinkler pipe was wasted. At a cost of $700, gates for letting the water out into the furrow were cut in the pipe. These outlets are so arranged that a sliding panel can be opened or closed to adjust the flow of water; when the gate is fully closed, the water pressure forces the gate against the pipe, making a positive seal. With this arrangement, the pipe can still be used for sprinkler irrigation when all of the gates are closed. The combination pipe is proving very useful—the leveled land is irrigated by gravity and the sprinkler system is still used on the rolling land.

"I hope eventually to get all my land shaped for gravity irrigation," Nehrig said, "but right now, I feel that I'd better hold up until I take care of my banker."

The costs of leveling the 100 acres ran

NEW LAND CLEARING TOOL REMOVES TREES, BRUSH FAST

Cheapest, easiest method ever invented for pulling out trees and brush up to 6 in. in dia. ROOTS AND ALL! Patented swing-aside brush plate for small brush and saplings. Use with tractor, jeep or team. GUARANTEED. ONLY $13.95 F.O.B. Wellington, Ohio. Send check or money order.

SHOX-STOK, INC., WELLINGTON, OHIO

Send me ( ) GRUBBING TONGS

Name.....

Address.....

City.....

State.....

Priced Right! Engineered Right! Serviced Right!

Streamlined McDowell

COUPLING IRRIGATION SYSTEMS

Note the streamlined McDowell design. No hooks, latches, or gadgets. Water pressure does the job automatically.

Only

Authorized McDowell Dealers Offer The Original, Automatic, Pressure-Lock Coupling!

If you're interested in portable sprinkler irrigation that works better with less work *and less upkeep*, it will pay you to see your McDowell dealer. He not only offers you the best coupling made, but he also has the experience to engineer and install for you a complete irrigation system that's best suited to your needs and your finances.

Too, every McDowell dealer is staffed to give you fast, expert service and to handle any operating problems that may come up in future years.

• • •

McDowell Couplings and Fittings are available in a full range of sizes for high or medium pressure operation and for gated pipe systems.

"Mac" McDowell—The Rainmaker

FOR FREE BOOKLET—MAIL COUPON TODAY

McDOWELL MANUFACTURING CO.
Dept. 1-C
Pittsburgh 9, Pa.

Charter Member—S.I.A.

Gentlemen:
Please send, without obligation, free literature on McDowell Coupling Portable Sprinkler Irrigation.

Name_____

Address_____

Town_____ State_____

Cook & Dufner, Speaks, Tex., bought two V-belt compounded International UV-549 V-8's with 384 combined hp on natural gas, replacing an older single engine, for this 576-ft. well with 300-ft. pump setting. Added bonus: more water, from a greater depth, plus 7% saving on fuel.

INTERNATIONAL...

for the man who expects pump power to protect his crops for years

Save money and headaches right from the start by facing the fact that your irrigation system is only as good as your pump power when the heat's really on.

Consult an irrigation power specialist—your nearby International Power Unit Distributor or Dealer. He'll give you a free power, fuel, and cooling recommendation that will give you the most dependable, economical power you can buy without paying a price penalty.

He can recommend a heavy-duty International irrigation engine matched exactly to your pumps and gpm requirements from his line of 21 diesel and carbureted engines. These range from 10.5 to 232 net hp on natural gas or from 60 to 250 net hp on low cost No. 2 diesel fuel.

See him soon for your year-after-year crop protection—International power. You'll get pump power that will protect your investment in your irrigation system and in your crops.

INTERNATIONAL® HARVESTER

International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

International Harvester Products pay for themselves in use—Farm Tractors and Equipment...Power Units...Twine ...Commercial Wheel Tractors...Motor Trucks...Construction Equipment...General Office, Chicago 1, Illinois.

to a little over $4,200, but Nehrig was eligible for around $700 help on this bill from the Agricultural Conservation Program of the Department of Agriculture. In addition to the land shaping costs and the $700 for converting his sprinkler lines into gated-pipe, Nehrig changed from butane to natural gas to operate the pump engine. This cost him $1,100 for a gas line—his old butane tank he sold for $400 which was just what he paid for it. To maintain the slope of his graded land, he first resurrected the old iron-wheeled road grader that had been designed for a four-mule hitch back in the days before World War I when parity was parity. But the old grader, which had served him well in 1937, just wouldn't do, so he pooled funds with a neighbor to buy a 32-foot Eversman land smoother for $800.

After farming with the new system for a year, Nehrig was pleased to find that he was luckier than most; the land had not settled to leave some high and low spots that had to be regraded. He had caught on to the operation of the gates; though there is still some pipe moving, he had reduced the labor considerably. "We put the water on ten-acre plots and let it run for thirty-six hours," he said. "That way we get around six inches of water soaked into the ground each round. Last year we were able to go over the seventy-five acres every ten to twelve days and watered some of it four times. We also used the sprinkler system on alfalfa. Last year we had a more favorable season for corn, but we also had to contend with some spots where leveling had scraped off a lot of the top soil and exposed unfertile subsoil for our farming. We made seventy-five bushels to the acre. With the change from butane to natural gas and the change in pump operation for this new system, we had much lower operating costs."

With the sprinkler system, the pump had to put out 1,000 gallons a minute at 85 pounds pressure; with gravity irrigation, the pump puts out 1,500 gallons per minute at 30 pounds pressure running at the same speed. This, along with the change in fuels, has reduced Nehrig's operating cost from $1 an hour to 10 cents an hour. Because he is not close to a source of cheap elec-

MARVIN 12 x 60 FT. STANDARD LANDPLANE ®

MARVIN LANDPLANES

Choice of Successful Farmers

For LAND LEVELING ACCURACY!

Marvin-LANDPLANE is THE choice of leading farmers and commercial leveling contractors because it is unequalled for getting fields *super-smooth* and level with *top economy!* Only LANDPLANE has the exclusive *rectangular design* for greater active leveling area; its *rigid frame* construction, *longer length* and *maximum stability* gives "pinpoint" leveling accuracy.

There's a size for every leveling need, from 20 to 80 ft. Write today for FREE 48-page booklet, prepared by land-forming experts. Profusely illustrated; factual.

MARVIN 10 x 30 FT. LITTLE SHAVER ® LANDPLANE ®

MARVIN LANDPLANE COMPANY
P. O. BOX 209 F O WOODLAND, CALIFORNIA, U. S. A.

You can depend on

DEMING PUMPS

for efficient irrigation!

Eliminate gambling on rainfall. Apply and control moisture when crops need it the most, with a dependable, DEMING vertical turbine or centrifugal pump. Deming Pumps assure low operating and maintenance costs.

The complete line of Deming irrigation pumps includes vertical turbine pumps for wells 4" or larger with capacity ranges to 3500 gallons per minute. Also a full line of centrifugal pumps of all types.

For further irrigation pump data, contact your Deming distributor or write:

The DEMING Co.

510 Broadway · Salem, Ohio

WADE RAIN
Sprinkler Irrigation

Leads WITH ALL the Features that Count Most in PROFITABLE Sprinkler Irrigation

MORE CASH RETURN . . . every year . . . from your land, your seed and your time when WADE RAIN is part of your crop production program. Proved for producing bigger crops of better quality. Yes, whatever you grow, whatever the weather . . . WADE RAIN will more than "pay its way" thru increased crop production.

Farm-Tested WADE RAIN Features

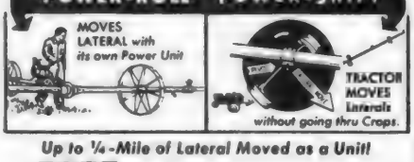
Cut Irrigating TIME . . . LABOR and COST

Only WADE RAIN has SELF-DRAINING Loks-In Gasket . . . – for FAST Lateral moves . . . drains lines AUTOMATICALLY when pressure is off.

★ Write for FREE Literature on Wade Rain HAND MOVE and

★ Years Ahead MECHANIZED Lateral Moves . . . both TRACTOR and SELF-POWERED Systems.

POWER-ROLL POWER-SHIFT



Up to ¼-Mile of Lateral Moved as a Unit!

FREE PLANNING FORM

"Farm-Facts" makes it easy to plan the best for your farm and crops. Use Coupon!

Ask Wade Rain Dealers about 5-YEAR FHA Pay Plan

R. M. WADE & CO. SINCE 1865

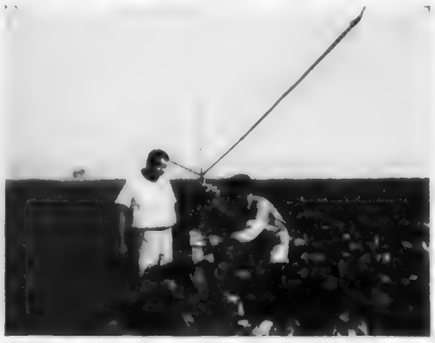
Headquarters — 1919 N. W. THURMAN ST. PORTLAND 9, OREGON
SEATTLE 4, WASH. 532 FIRST AVE. SOUTH
COLUMBUS 15, OHIO 343 NORTH FRONT ST.
Foreign Sales — Irrigation Development Corp. 11 West 42nd, New York 36, N. Y.

Send me free "Farm-Facts" Planning Form and illustrated Wade Rain Literature.

NAME.....
ADDRESS.....
CITY.....STATE..... W-26-W

tricity to power an electric motor, this is about as cheap as he can do his pumping.

As for labor, Nehrig spends two or three hours a day checking the pump, the gate settings on the pipe, and the lower end of the field to see which rows are fully watered and can have their gates cut back. Since he is pumping a larger volume of water, he runs two laterals to cut down friction and reduce the pressure when it gets to the gates. Too much pressure at the gates, he finds, causes washing when it hits the soil. As for pipe moving, he moves all of the pipes to the field right after the last cultivation of the row crops.



Mobile systems are cutting labor. Here is a boom and trailer sprinkler system.

Once in place, however, the pipe is moved about once a week and always on dry land with a wagon.

Having used both sprinkler and gravity equipment, Nehrig is often asked which is best. His answer is, "It depends on the farm and the farmer." Sprinkler systems have some very definite advantages. They save water. In tests run in Nebraska it was found that gravity irrigation used 12 per cent more water than did sprinkler, due mainly to evaporation and water percolat-

THE FARM'S PICTURES

Cover by David Corson-Shostal

40—Carl Day: Harvey Hobbs. 41 thru 43—R. J. McGinnis. 44—Fred Knoop. 45—Joe Munroe. 46—Chart by Fred Eichenberger. 47—The Union Stock Yard & Transit Company of Chicago; Ed Pikar. 48—Robert B. Goodman; Ed Pikar. 49—Fred Knoop. 50—Art Conrad. 51—Art Conrad; Alfred Tritschler. 52—Charles R. Koch. 53—Charles R. Koch; R. J. McGinnis. 54 and 55—Grant Heilman. 56 and 57—Charles R. Koch. 58—R. J. McGinnis. 59—Joe Clark. 60 and 61—D. C. Jennings. 62—D. C. Jennings; Fred Knoop; Black, Sivalls & Bryson, Inc. 63—D. C. Jennings. 64—Art Work by Don Ashcraft. 66—Grant Cannon. 67—Joe Munroe. 68—S.C.S.; W. R. Ames Co.; J. C. Allen & Son. 69—Thomas E. Peter; Fred Knoop. 70—Clemson College Extension Service; Map by Fred Eichenberger. 71—USDA Photo. 72—Wide World Photo; Kolling, Lehker & Toy, Inc. 73—Cincinnati Baseball Club Co.; Wide World Photo. 74—Wide World Photo; Joe Munroe; Wide World Photo; St. Louis Post-Dispatch. 75—Wide World Photos. 77—Fred Knoop. 78—Deere & Co.; M. A. Sprague. 79—Bob Taylor; J. C. Allen & Son. 80—Stirling Kyd, except bottom photo by Lee Jenkins 81—John Jeter. 82—Tryco Mfg. Co. 83—Fred Knoop; Hanson Equipment Co., Tryco Mfg. Co. 84—Tryco Mfg. Co. 85—Joe Munroe. 96—Caterpillar Tractor Co. 100—Valley Mfg. Co. 115—Kansas State College. 119—Minneapolis-Moline Co.

for a WATER SYSTEM that goes in FAST and EASY . . .

THE GUARANTEED FLEXIBLE PLASTIC PIPE IS Cres LINE

PROVED right by exhaustive tests

GUARANTEED right IN WRITING

IF YOU'RE planning a cold water system for drinking water, for livestock or for irrigation, consider this: You can carry a roll of flexible plastic pipe on your shoulder and feed out the pipe with one hand as you walk, snaking the pipe around trees and boulders. And your cost installed will be less than either galvanized pipe or copper tubing. BUT . . . the obvious advantages of flexible plastic pipe can be lost unless you insist on the very best — the kind that will resist the stresses and strains of rugged farm use. Cresline Flexible Plastic Pipe is made of the very finest virgin polyethylene, extruded under rigid quality controls, and continuously subjected to exhaustive accelerated use tests. So certain are we that we manufacture the very finest, we guarantee every foot of Cresline Flexible Plastic Pipe to be right *in writing!*

LOOK FOR THESE ADDED PROOFS OF QUALITY

This seal on Cresline Pipe shows the National Sanitation Foundation has approved it for drinking water use.

Cresline is made with Du Pont Alathon 25 and is marked with this tag. It proved best in our tests.

ALL PLASTIC PIPE IS ROUND, BLACK AND HAS A HOLE IN IT . . . BUT THERE IS A DIFFERENCE

Write for complete information and name of your nearest dealer.

CRESCENT PLASTICS, INC.
Dept. Q8, 955 Diamond Ave.
Evansville 7, Ind.

WE PLAN...YOU PROFIT

IRRIGATION pays big returns. Irrigation is a big investment. There are risks, mainly in system efficiency.

Any pipe, any coupler, any sprinkler, any pump, when put together, will likely function. How well they function is a question. How costly is a question. How dependably is a question. Any question on the wrong ledger side is expensive. Reduce the risk. Irrigate confidently with a Gorman-Rupp dealer's engineered system, designed for farm profit.

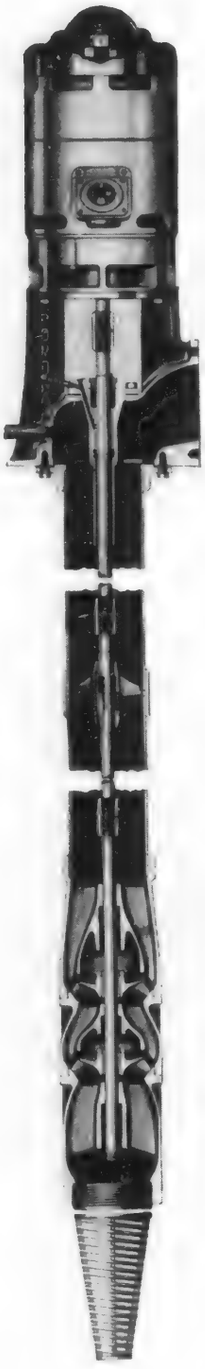
When a Gorman-Rupp dealer sells an irrigation pump, he usually designs the complete system in which it will be used. He tailors this system to water source, land contours, crops, soil, acreage, possible expansion, expected area rainfall... to name just a few factors.

It takes a lot of study, a lot of knowledge and practical experience. It pays off for the farmer. If you are considering irrigation, see your Gorman-Rupp Pump dealer. He offers irrigation systems fitted exactly to your needs.

Mr. Sterling Evans, President, Evans Orchard Supply Co., Kansas City, Missouri, says, "We select Gorman-Rupp Pumps because (1) we can depend on them to deliver the gallonage and pressure shown in their specifications (2) they give dependable, efficient operation (3) they are easily serviced (4) The Gorman-Rupp Company is fair in its dealings and (5) we get prompt shipment on both original pump shipments and repair parts."

THE GORMAN-RUPP COMPANY

305 Bowman Street • Mansfield, Ohio



Before you decide on any pump...

NEW FAIRBANKS-MORSE Pomona turbine pump

Before you decide on *any* pump, be sure you've seen this all-new, water-lubricated turbine pump designed especially for irrigation pumping.

For ruggedness of construction, simplicity of maintenance, and strictly quality design throughout, this new F-M Pomona turbine pump is today's greatest value. No other pump is so easily installed, so easy to adjust for varying field conditions, so simple to change between electric, belted or geared drive. Here is your top turbine pump buy at any price . . . your answer to low-cost, dependable pumping through the years.

Mail the coupon today for new illustrated Bulletin 6957-1, and for the name of your nearby Fairbanks-Morse or F-M Pomona pump dealer. He has every type, every size pump you need for irrigation—whether sprinkler or flood, from surface sources or deep well. Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE
a name worth remembering when you want the BEST

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY
RAIL CARS • HOME WATER SERVICE EQUIPMENT • MAGNETOS

Fairbanks, Morse & Co., Dept. FQ-3
600 South Michigan Ave., Chicago 5, Ill.
☐ Send Bulletin 6957-1 on new Pomona turbine pump.
☐ Send me the name and address of my nearest F-M pump dealer.

Name_____

Address_____

City or Town_____

State_____

ing beyond the root zone. The sprinklers also have the advantage of requiring little or no land shaping—on some rough land sprinklers are the only method of irrigating. Sprinklers are the answer, too, when the top soil is too thin to permit much soil movement for the purpose of leveling the land. In some cases, sprinkler systems are preferred because of the lower initial cost when compared to land grading and gated pipe. And sprinklers are more versatile since they have additional uses as frost control or fire protection.

Gravity, on the other hand, uses less operating labor to get the water onto the land. Because of lower pressures, gravity irrigation has lower pumping costs; often the pump itself is less expensive. Because such a system is run at lower pressures, the pipe that carries the water to the field and distributes it is lighter and somewhat less expensive. Where water is plentiful and the land lays right, ditches can be used in place of pipe and the fields watered by siphoning the water from the ditch with the inexpensive plastic or aluminum siphon tubes—though this method usually calls for more leveling and ditch work than does gated pipe irrigating.

Farmers who are used to having a fixed price put on most of the things they buy have to change their way of thinking when they price the different irrigation systems that might be used on their farms. The big variable is the cost of land leveling. The amount of earth that must be moved and the location of the source of water are the key factors here. To arrive at a set of comparative figures, a farmer must set down accurate estimates of the cost of each of the items that will go into the system. Such a listing was made for a gently rolling Nebraska farm by Warren DeKrey, University of Nebraska.

This particular farm, DeKrey found, could be irrigated by ditch and siphon tubes, by gated pipe, or by sprinkler, so he figured the cost of each method of putting water on the 141 acres to be irrigated. The investment in equipment came to $836 for the siphon tube method, $7,089 for gated pipe, and $7779 for sprinklers. In addition to this the siphon tube method required $853 invested in permanent structures such as ditches and a concrete stilling box for quieting the water down after it had been discharged from the pump. Land grading costs for this particular

WATER ACRES FAST

Automatic latching ends. Easy to connect and disconnect from standing position. Choice of either cast aluminum or Steelfab couplers on aluminum pipe.

Normal rainfall is not enough—nor at the right time. Depend upon OK Champion Irrigation—"the Pioneer and Quality Line". Water an acre or square mile at low cost.

LAYOUT PLANS FREE. Write us—we shall be glad to send you an irrigation plan to fit your needs.

CHAMPION CORPORATION
4791 SHEFFIELD AVENUE HAMMOND, IND.

CHRYSLER IRRIGATION POWER HELPS

Pioneer new agricultural frontier

Joseph A. Scinocca, Executive Vice President
Wilderness Valley Farms, Zim, Minnesota

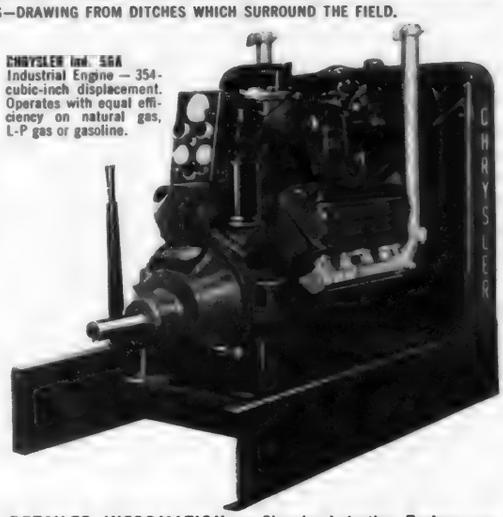
CHRYSLER-POWERED IRRIGATION PUMP WATERS CELERY CROP IN A 400-FOOT RADIUS—DRAWING FROM DITCHES WHICH SURROUND THE FIELD.

Wilderness Valley Farms grows most of the vegetables for Chun King Sales, Inc.—one of the world's largest producers of American-Oriental Foods—on 5,000 acres of what was once idle, cutover forest land north of Duluth, Minnesota. The reddish-brown peat soil is extremely fertile but the growing season in Northern Minnesota is very short. If crops do not mature in time for late September or early October harvest, they are in danger of a fatal frost. That's why the farm's Chrysler-powered irrigation system is so important. It assures ample water to bring the crops to maturity before the frost.

500 acres of the farm are now under irrigation and celery is the principal crop. Since the installation of the Chrysler-powered irrigation system in 1953, a 25% increase in yield has been obtained.

Two Chrysler-powered pumps, operating on gasoline, deliver about 20,000 gallons of water per hour, which is sprayed in a 400-foot radius. The pump is moved about every hour. During one period, the engines operated steadily for two weeks. Yet there has never been a major maintenance problem.

CHRYSLER Ind. 56A Industrial Engine — 354-cubic-inch displacement. Operates with equal efficiency on natural gas, L-P gas or gasoline.



Chrysler
INDUSTRIAL ENGINES

FOR DETAILED INFORMATION on Chrysler Irrigation Engines see your Chrysler Industrial Engine Dealer, or Address: Industrial Engine Division, Dept. N-3, Chrysler Corporation, Detroit 31, Michigan.

New booklet tells the INSIDE FACTS about

LOW COST Sprinkler Irrigation!

Don't be fooled. Be sure you get what you pay for! A sprinkler system can be your most important farm tool and can make *money* for you!

Years of service and low operating costs must be considered. Remember, your initial cost is not your *only* expense. Get *all* the facts before you buy.

Any sprinkler system will increase yield. The cheapest system may be the most expensive to operate. Find out why you get a better deal with a full line of SHUR-RANE valves and fittings... what your "rights" are as a registered SHUR-RANE owner... why SHUR-RANE is actually the most economical and versatile sprinkler system you can buy.

Owner Registered

SHUR-RANE®

SPRINKLER IRRIGATION

SHUR-RANE Department FQ-1
FOOD MACHINERY & CHEMICAL CORP.
Gentlemen: Please send me your new booklet, "The Inside Facts About Low Cost Sprinkler Irrigation." I would also like to receive information on:

☐ Grains ☐ Cotton ☐ Corn ☐ Orchards
☐ Produce ☐ Pasture ☐ Fertilizer ☐ Row Crops

Name_____ Address_____
City_____ State_____
Farmer_____ Student_____ Other_____

Mail to nearest JOHN BEAN DIVISION *factory*
San Jose, Cal. Orlando, Fla. Lansing, Mich.

®
Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

JOHN BEAN DIVISION

farm were estimated at $6,038 for the siphon method and $5,953 for gated pipe; the sprinkler system didn't require any leveling. This made a total investment of $7,728 for siphon tubes, $13,042 for gated pipe, and $7,779 for sprinklers. Operating labor costs he estimated at $447 for siphon tube irrigation, $388 for gated pipe and

A self-propelled system for 40 acres.

$997 for sprinklers. Power to pump the water came to $112 for both siphon and gated pipe systems and $1,632 for the sprinklers; the higher cost being due to the pressure requirements. Naturally in figuring total costs he also took into consideration the interest on the investment, taxes, depreciation, repairs, and the amount of tractor use that each system required. The labor costs used by DeKrey in his study, which was included in the bulletin "Cost of Distribution of Irrigation Water" by Thorfinnson, Hunt, and Epp, are based on hand moving the pipe. No figures are available which will show the labor saving of the wheel move and boom type systems.

One practical point that Nehrig has found is that the gravity irrigation has given him more uniform distribution of water on his land. The sprinkler system did a fine job of spreading the water evenly, but, because of the rate at which he applied it, he was getting some run-off from the high spots before it could penetrate the soil. For this same reason, the shaped land of a gravity system makes better use of the rainfall.

"But the biggest advantage," Nehrig says, "is that I have doubled my capacity with the same pipe and pump. I pump half again as much water and, because the system needs little attention once the gates are set, I can operate twenty-four hours a day. This way I can put on the water I need at critical times."

Nehrig is convinced that his gravity system will do the job for him in the years to come. When a neighbor asked for advice on irrigation, however, he advised a sprinkler system. "His land was just too rough to level economically," Nehrig said. "He liked the idea of saving labor because that is always a problem, but not at what it would cost to level his place. I did advise him to look over the new movable sprinkler systems—the laterals that can be towed by a tractor to the new setting, the wheel types, and the new systems that have long booms mounted on a trailer. If I were in his place and were planning a new system, that's what I would do."

SORGO KING

(*Continued from page* 53)

makes silage none are needed. When the sorgo is cut it goes into big manure spreaders with extra high sides for handling silage. In filling the trenches the spreaders are pulled through the trench, the paddles throwing the material out and spreading it along the bottom from one end to the other. It takes about two runs through the trench to unload a spreaderful. The material is topped off with a crown and for 9 or 10 days after the trench is filled, tractors and the roller from a culti-mulcher are run back and forth to pack it

No cover of any kind is used "Maybe I'm just a bit extravagant because we have such an abundance of feed," King says, "but we don't get more than five inches of spoilage on top and we put it all back on the land anyhow, so I don't see where it would pay me to use a cover"

This sorgo champ has never tried grass silage and, from all indications, does not intend to in the near future. "I'm willing to admit that it takes more skill and precision to make grass silage and I'm satisfied to stick with a crop I know how to handle and which will turn off plenty of tonnage for me," he says. "With grass you have to cut it at just exactly the right stage, you have to wilt it or use a preservative and you have to get it in pretty fast. We start cutting our sorgo about the first week in September and going a more or less leisurely pace get it all in by the first of October. You couldn't take that long with grass.

"Another point I ought to mention, too, is that you don't have to be afraid to put up sorgo silage after frost has hit it," he continues. "There is no danger of prussic acid poisoning, though the leaves may shatter some."

King advises using about a ¾-inch cut in putting up sorgo silage. This is short enough to pack well and not so short that it turns into a soggy mass and gums up the blower pipe in filling upright silos.

Feeding Out

One of the unique features of the King operation is the way he houses his herd. He has built a number of small three-

IMPROVED NO. 2 BOSTROM FARM LEVEL

This Level has 12-Power Telescope and is used and endorsed by Schools, Extension Service and Individual Landowners everywhere.

Accurate, Durable and Complete for Terracing, Ditching Irrigating, Grading, Tile Draining, Running Lines, Turning Angles, etc.

BOSTROM Levels are so simple anyone can operate them by following the direction booklet included with each Instrument. Our No. 4 Contractors' Level and No. 5 Convertible Level feature 16-Power Telescopes. All Bostrom Levels are sold on the guarantee of satisfaction or money back. WRITE TODAY for literature, prices and name of our distributor near you.

BOSTROM-BRADY MFG. CO.
534 Stonewall St., S.W. ATLANTA 3, GA.

SKINNER SPRINKLERS
give you MORE from any irrigation system

Get BIGGER YIELDS with correct water distribution!

In portable irrigation, one fact is beyond dispute—crop quality and yield are a direct result of the water distribution pattern of the sprinklers you select.

That's the reason why Skinner sprinklers can be particularly profitable for you. Available in a complete range of types and sizes to meet every watering need—and ruggedly constructed to assure you dependable, positive performance under the roughest use . . . Skinner sprinklers deliver a gentle, uniform water pattern that has never been excelled. They utilize water to maximum advantage . . . give you MORE from any system.

It will pay you to specify Skinner sprinklers on your irrigation system. They do so much—cost so little.

THE SKINNER IRRIGATION CO.
200 Water St. • Troy, Ohio

Without obligation, please send me complete information on Skinner sprinklers.

NAME_____

ADDRESS_____

CITY_____ STATE_____

SKINNER

Dependable irrigation equipment manufactured by 60 years of experience

For Crop, Orchard and Pasture Irrigation

***Insist on* HALE**

Irrigation Pumping Units
FOR MORE WORK AT LOWER COST

You may find the HALE type PIR (trailer or skid mounted) just what you have been looking for—pumps 500 GPM at 100 PSI; 700 at 75 PSI. Other units range from the CIRV (1560 GPM at 75 PSI) to the FZ or new Hale "TORRENT," suitable for low cost irrigation of small acreage.

Ask about the New

HALE "*Torrent*"
Self-Priming Portables

Quality-built, quick starting, low cost—The "Pump of a Thousand Uses."

Model 20T—Gasoline Engine Driven Unit. Pumps over 7000 U.S. gallons per hour. Engine includes Exhaust Valve Rotator—a must with modern fuels for insuring longer trouble-free service.

Model 15TP—Pedestal Pump (for available power).

Model 15TPE—Electric Motor Driven Unit.

The versatile "TORRENT" has large-passage open impeller for "Clogless" operation—pays its way around farms as a portable unit for "on-the-spot" filling of tanks with water, liquid fertilizer, etc.; also for small irrigation jobs, stand-by water systems and emergency fire fighting.

HALE Irrigation Pumping Units are sold thru Distributors who are well qualified to Engineer a system best suited to YOUR needs.

WRITE TODAY to Dept. FQ for full information. Prompt reply guaranteed. State No. of acres and water source.

Name .....

Address .....

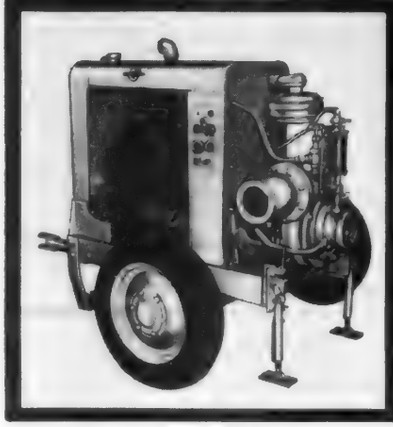
Water Source..... No. Acres.....

IRRIGATION DIVISION

HALE FIRE PUMP CO
CONSHOHOCKEN, PA

New models...revolutionary new features for better, lower cost irrigation . . .

CMC Rainmaster Pumps



ABOVE: New model SS-5H-75 Rainmaster with all the new features including the new cost saving heat exchanger system. Pumps 500 g.p.m. at 145 lbs. — 800 g.p.m. at 95 lbs. **WRITE FOR LITERATURE.**

New Heat Exchanger System on Rainmasters Increases Horsepower, Cuts Fuel Costs

Now get maximum yields from each acre . . . every year at LOWER COST THAN EVER BEFORE by irrigating with the new CMC Rainmasters. New heat exchanger system . . . now available on all water-cooled Rainmasters . . . increases pump efficiency, lowers operating costs. Other top-quality features include safety controls, balanced impeller with oversized shaft, self-adjusting rotary shaft seal.

Farmers everywhere have found that Rainmasters run at moderate speeds for pressure developed . . . resulting in big savings in fuel, less engine wear, greatly reduced maintenance costs.

THERE'S A RAINMASTER EXACTLY SUITED TO YOUR NEEDS. Available in a complete range of sizes in engine powered and PTO pumpers from 100 G.P.M. to 2,000 G.P.M. MAIL COUPON BELOW FOR COMPLETE INFORMATION.

NEW FREE CATALOG

CONSTRUCTION MACHINERY COMPANY,
Waterloo, Iowa
Dept. S1-8

I am interested in an irrigation system for my farm. Rush me your NEW, FREE Irrigation Pump Catalog with full details on RAINMASTERS.

NAME _____

ADDRESS _____

TOWN _____ STATE _____

2½ bu. more per acre
...at a cost of less than 18c per acre!

You get double returns on your soybean crop when you use Legume-Aid Inoculant. You enjoy a bigger crop, *and* you replenish the nitrogen in your soil.

Legume-Aid Inoculant's patented plastic bag inside the carton best allows the bacteria to breathe . . . keeps the inoculant at highest potency . . . holds the original moisture content so that you need not wet seeds before using Legume-Aid.

Look for Legume-Aid Inoculant at your local seed dealer's. In convenient 2-bu., 5-bu., or 20-bu. units.

AGRICULTURAL LABORATORIES, INC.
1147 Chesapeake Ave., Columbus 12, Ohio

BEFORE YOU BUY!

find out about a

Flinchbaugh WAGON UNLOADER

Just Mail This Coupon

The FLINCHBAUGH Company
Eberts Lane, York, Pa. Dept. 1

Please send information and prices on your complete line of Unloaders.

Name _____

Address _____

Town _____ State _____

sided sheds, each 12 feet by 20 feet with a 4-foot roof overhang. These sheds are of aluminum or galvanized siding and are on skids so they can be moved easily from place to place behind a tractor in the same manner as a hog house. Three of them placed together in a semi-circle make a cozy shelter for a small herd. Together with feed bunks and hay racks he scatters these around in the various fields and moves them to other spots when he feels the various areas have had their quota of self-spread manure. When spring comes and the frost begins to go out of the ground, the cattle are moved back to the barn lots.

King has kept his equipment investment to a minimum. His feeding is carried on with only one small tractor and a two-wheeled trailer. The silage is forked out by hand, hired man Gunnard Hollquist, "the King of Sweden's good-will ambassador," doing the job. And the trenches are unlined. "They cost me only $85 apiece," King says, pointing out at the same time that he is lucky to be on a sandy soil with excellent drainage which keeps the trenches from deteriorating into mud holes.

"If I had a lot of mechanical equipment," he goes on, "I probably couldn't afford to keep Gunnard, and that would be a real loss. He worked for my Dad when Dad was a foreman at the International plant in Rock Falls and he's been with us so long that the boys seem to think that he and Mrs. Hollquist are part of the family. He's always full of good stories about farming in the old country and that's something you can't hear from one of these mechanical unloaders. Besides, if a man is going to do a really good job with livestock he can't be in such a hurry all the time. He has to spend some time with them and really get to know them. It pays off in the long run."

For Fattening Cattle

The general rule is that for fattening cattle, corn silage is much superior to sorgo. The cattle are able to utilize the grain in corn silage much more efficiently than they can handle the sorghum grain. But Delbert Plautz, one of King's neighbors and one of his most enthusiastic disciples in the matter of sorgo silage, prefers the sorgo even for his choice feeder steers. "The sorgo will make much more tonnage than corn," he says, "and you can always add corn to it. Besides if you run into a stretch of dry weather the corn dries up and doesn't do so well, but the sorgo stays right with you."

He uses a bunker silo 15 feet wide and 7 feet high and points out that it used to take 13 acres of corn to fill the bunker when it was only 60 feet long. He added 20 feet to it and now fills it with only 10 acres of sorgo.

His 75 head of light calves last winter were given 20 pounds of silage per head per day, and 1 pound of a 22 per cent protein supplement. On top of this he

Fill Your Planter Boxes with...

PIONEER

and be more assured of Fast, Vigorous Growth Proper Maturity, Strong Standability, Clean Efficient Picking...

BIGGER YIELDS
and
GREATER PROFITS

PIONEER Hybrid Seed Corn is produced by the following companies:

Garst & Thomas Hybrid Corn Co.
Coon Rapids, Iowa

Pioneer Hi-Bred Corn Co.
Des Moines, Iowa

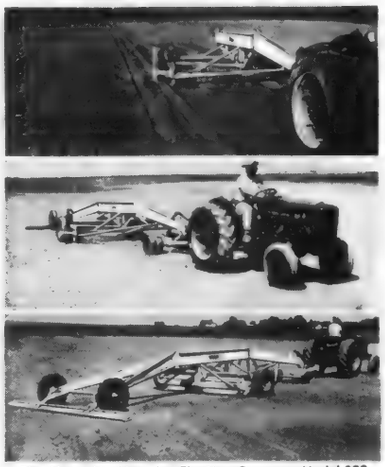
Pioneer Hi-Bred Corn Co.
of Illinois; Princeton, Ill.

Pioneer Corn Co., Inc.
Tipton, Indiana

dumped a half and half mixture of shelled corn and oats, feeding out a 75-bushel trailer in 6 days. A little hay completed the ration.

With the urgent necessity for cutting costs in the livestock enterprise, Wilson King's success in using sorgo to produce huge tonnages of forage per acre, using even a variety formerly considered of doubtful adaptation, is a real challenge to farmers and experiment stations to see just how much they really can get from an acre of land with this crop.

Moisture Management and LAND SMOOTHING
WITH AN Eversman LAND LEVELER and DIRT MOVER
Greatly Increase YIELDS PER ACRE



The Above Machines Are The New Eversman Model 329

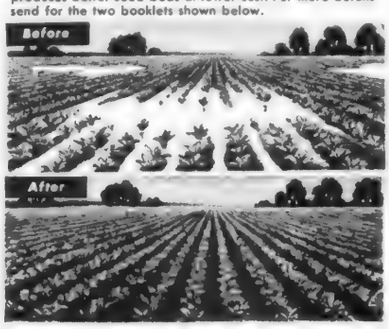
Eversman engineered fields mean more profits for farmers through greatly increased production per acre. Now the average farmer with his own tractor and at low cost can—

1 Shape fields by grading down high spots, filling in low areas and pot holes that gather water and drown out crops.

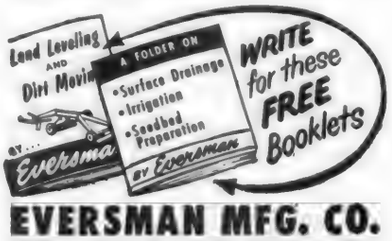
2 Build farm-over drainage ditches or grass water ways when needed to get excess rainfall off the land quickly.

3 Increase production on irrigated land. Smooth level surfaces free of pockets, dead furrows and back furrows result in great savings in labor and water with every foot of ground producing uniformly.

4 Produce a better seed bed. The Eversman with spring-tooth attachment is a complete TILLAGE TOOL which produces better seed beds at lower cost. For more details send for the two booklets shown below.



There are 7 all purpose (mechanical or hydraulic) Eversman Models for all standard farm tractors . . . for Automatic Land Smoothing, Dirt Moving and Seed Bed Preparation.



EVERSMAN MFG. CO.
DEPT. 7 • CURTIS AND FIFTH • DENVER 4, COLO.

FLORIDA TRANSPLANTS

(*Continued from page* 43)

—and that was a big item for six children, my husband and myself. Here home-grown vegetables are cheap the year around. The schools are just as good as Ohio schools and the children have better health—they are outside most of the time. I do miss my friends and relatives up North, but that is not so bad because most of them visit us during the winter. We kept a record last year—47 guests from Ohio."

Rockow the Cucumber Man

Herb Rockow got cold during the early morning hours of December 12, 1957, got up and threw another blanket on the bed. He couldn't go to sleep. Frost warnings had gone out the day before, but he could not believe it was to be as bad as it was. He put off going outside that morning—he knew what he would find and it made him sick to think of it.

It was worse than he thought—80 acres of fine cucumbers, ready for Christmas markets, 10 acres of peppers, 20 acres of tomatoes, all as black as a bad-luck cat. The peppers might come out of it and make part of a crop, but the cukes and the tomatoes were a total loss.

That is Florida, but the loss of a crop is not as heartbreaking as it is in the North —you put in another crop and go right on. The rhythm is broken, but you can get back in step in short order. Herb Rockow got out his Diesels and drills and by nightfall a good many of the blasted acres were back in cucumbers.

Herb was born on his father's farm in Williams, Iowa. After a spell in the service he took over the 160-acre farm and until 1950 raised corn, hogs, and beans. He couldn't see very much ahead in Iowa. Several visits to a cousin in Florida convinced him that he could do better there. His wife liked the Florida weather and he liked the flat, rich fields which could be leased for a song. In 1950 he sold out his interests in the Iowa farm and with a partner leased 40 acres near Pine Island and put in a crop of cucumbers.

After a bad frost that first year Rockow's partner got discouraged and went back to Iowa. Herb Rockow was made of sterner stuff. He leased more land, bought an extra Diesel and has gone ahead since. Last year he grossed $50,000. He has one year-'round helper. When his crops come off he has 40 to 50 people in the fields. His labor bill last year was $12,000.

Rockow's land lease arrangement is

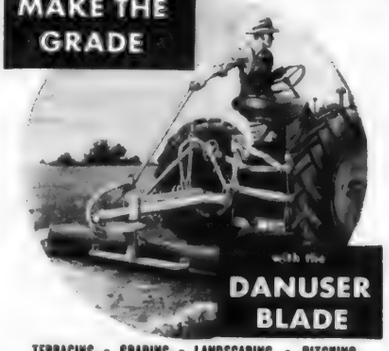
Roper DIGS DOWN FAST, through:
stony ground
clay
hard pan
shale
even coral rock
4" TUBING
DOUBLE FLIGHT
3" BEARING INSIDE

- 10 Yr. Guarantee on all gears
- 1 Yr. Guarantee on entire unit
- Shear Pin—Above Ground
- Choice 6" to 24" Auger Digs to 48" Deep

FREE Cattle WEIGHT TAPE!

ROPER mfg. co.
ZANESVILLE, OHIO
For FREE tape, write, give your dealer's name

MAKE THE GRADE



with the DANUSER BLADE

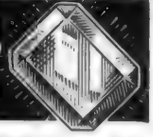
TERRACING • GRADING • LANDSCAPING • DITCHING
SCRAPING • BACKFILLING • SNOW REMOVAL

Cut time, save labor, slash costs on every earth moving operation with the world's most versatile blade. One man operates hydraulic controls from tractor seat. Blade raises, lowers, tilts, angles, even turns clear around so you can push with it. Heavy duty construction. Quick, easy installation. Tested and approved by tractor manufacturers. Write for literature describing application to your tractor.

FREE BOOK! "Guide for Better Terracing"
"Contributing to Farm Mechanization"

DANUSER MACHINE CO.
508-38 East 3rd Street • Fulton, Missouri

CRYSTOL
Keeps Ponds Clear Prevents Algae



Use now to prevent growth of summer algae. Also destroy odors and slime-forming bacteria. Keeps water sanitary and sparkling clear for clean, healthy swimming. Harmless to crops and non-toxic to some game fish when used as directed. This odorless liquid is economical too—1 gal. treats a 50,000 gal. pond and a single application is effective for weeks. Try Crystol once and see results! Send coupon today for trial offer.

1 GAL. only $6.95 ppd.

READING TESTING LABORATORIES, INC.
Reading, Penna.

READING TESTING LABORATORIES, INC.
Dept. F, 658 S. 7th St., Reading, Penna.

Yes! Send me, postpaid, 1 gal. trial supply of Crystol. I enclose check or money order for $6.95.

NAME .....
ADDRESS .....
P.O. ..... STATE.....

Crops Grow Greener!

with a reliable

JOHNSTON PUMP

Johnstons pump smoothly, evenly — produce a full pipe of water with less power at lower cost. Verticals sized from 1½ to 1000 hp; 25 to 10,000 gpm.; 4 to 30 in., plus a complete line of submersibles.

For a convincing demonstration, see your local dealer today.

JOHNSTON PUMP COMPANY

A Division of The Youngstown Sheet and Tube Company

"The Quality Line Since 1909"

PASADENA, CALIFORNIA

ALABAMA
Anniston, Abernathy Well Drilling Co.
Montgomery, Devoe Machinery Co.

ARIZONA
Duncan, Duncan Equipment Co.
Phoenix, Gilbert Pump & Equipment Co.
Tucson, Arizona Maintenance Co.

ARKANSAS
Newport, McDonald-Beaumont Equipment Co.
Newport, Northeast Arkansas Pipe Co.
Stuttgart, O. M. Phillips

CALIFORNIA
Arroyo Grande, Water Well Supply Co.
Artesia, Artesia Pump Co.
Bakersfield, Bakersfield Pump Co.
Chico, Lassen Pump & Motor Works
Chowchilla, Jack Merrill & Hansen, Inc.
El Cajon, W. D. Hall Co.
Escondido, Robert E. Morrison
Fresno, Miller & Bransford
Gilroy, Lee L. Mathison
Goleta, Clancy Bros.
Hanford, Hill's Machine Works
Indio, Coachella Valley Pump & Supply
Lancaster, Fred Miller
Lockeford, Goehring Hardware & Supplies
Lompoc, Alexander Bros.
Madera, J. L. Williams
Newbury Park, Noll Pump Service
Newhall, Wallace-De Loach Supply Co.
North Sacramento, Odell's Pump Service
Ojai, Burr Pump Co.
Ontario, Neil A. McMullin
Palm City, Union Pump & Equipment Co.
Palo Alto, Robert Garcia Well Drilling
Porterville, D. S. Jackson Pump Service
Ramona, Ray West
Santa Ana, McCalla Bros. Pump & Drilling Co.
Santa Rosa, Bartley Pump Co.
Valley Center, Tom Wallace
Victorville, Water Service & Equipment Co.
Vista, Western Drilling & Pump Co.
Wasco, Carter Machine Shop
Woodlake, W. R. Godfrey Pump Co.
Woodland, William P. Wilson
Yuba City, Schmidt Pump House, Inc.

FLORIDA
Orlando, Heater-Well Co.
Tallahassee, Barnes Pump & Well Drilling

GEORGIA
Jessup, Harris Gin Co.
Statesboro, M. E. Ginn Co.
Thomasville, Davis Meter Repair & Supply

ILLINOIS
Zion, Hoover Water Well Service

KANSAS
Garden City, Henkle & Co.

LOUISIANA
Rayne, Guidry's Machinery Co.
Shreveport, Peerless Supply Co.

MICHIGAN
Scottville, Pump Engineering & Supply

MINNESOTA
Minneapolis, Tonka Equipment Co.

MISSOURI
Kansas City, Forslund Pump & Machinery

MONTANA
Billings, Midland Implement Co.

NEVADA
Dyer, Wright Drilling

NEW HAMPSHIRE
Keene, Bramii Pump & Supply Co.

NEW JERSEY
Bridgeboro, Charles Mollitor
Lodi, Mooney Bros. Corp.
Sea Girt, Joseph T. Kearns

NEW MEXICO
Albuquerque, Powell Electric Corp.
Clovis, Ingram Bros. Pump Co.
Deming, Oliver Implement Co.
Las Cruces, Joe L. Smith Implement Co.

NEW YORK
Mt. Ivy, M. W. Ives & Son

NORTH CAROLINA
Raleigh, Heater Well Co., Inc.

OKLAHOMA
Enid, George E. Failing Co.
Oklahoma City, Cook Supply Co.

OREGON
Klamath Falls, Valley Pump & Equipment Co.
Portland, Pump Pipe & Power Co.

RHODE ISLAND
West Barrington, James K. Boyd

TENNESSEE
Jackson, Southern Supply Co.
Nashville, Rock City Machine Co.

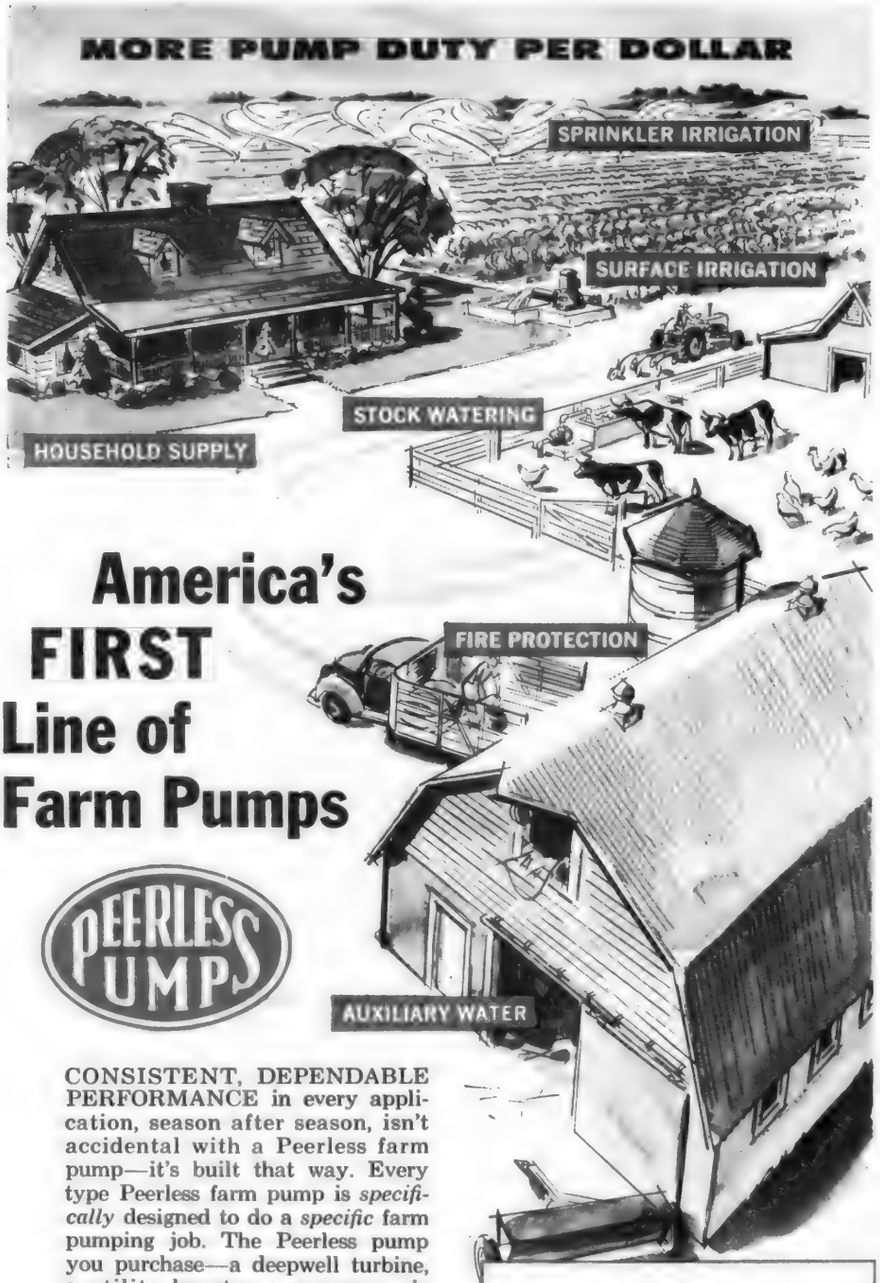
TEXAS
Colorado City, O. L. Williams
Crystal City, Zavala Pump & Engine Co.
Donna, Bell Machinery & Supply Co.
Floydada, Texas Pump & Machine Corp.
Ft. Worth, Well Machinery & Supply Co.
Hereford, Big T Pump Co.
Katy, Katy Drilling Co.
Lubbock, Deal's Pump & Pipe Supply Co.
San Antonio, Calhoun-Buckner Co.
Seagraves, Karr Pump & Supply
Spearman, Spearman Drilling & Pump Co.
Stinnett, John C. Bergner
Waco, The Rohan Co.

UTAH
Beryl, Henry A. Wood
Fillmore, Dallas Equipment Co.
Salt Lake City, J. Henry Jones

VIRGINIA
Lynchburg, Falwell Well Corp.

WASHINGTON
Spokane, General Machinery Co.
Walla Walla, Moore & Anderson
Yakima, DeCoto Bros. Irrigation Div.

WEST VIRGINIA
Charleston, Virginian Electric



America's FIRST Line of Farm Pumps

PEERLESS PUMPS

CONSISTENT, DEPENDABLE PERFORMANCE in every application, season after season, isn't accidental with a Peerless farm pump—it's built that way. Every type Peerless farm pump is *specifically* designed to do a *specific* farm pumping job. The Peerless pump you purchase—a deepwell turbine, a utility booster, any pump—is going to perform like a champion, and give you a *dollar's worth of duty for each dollar invested.* For every farm pumping need, there's a Peerless pump that was made for it—and your Peerless Dealer has it in stock. See him today.

COMPLETE DEALER SERVICE AVAILABLE

Behind every Peerless sale stands a complete Dealer Service. Wherever you're located, whatever you need and whenever you need it, you can depend on your Peerless Dealer to come through. He realizes the importance of customer service; he has built his business on it. You'll find his warehouse well-stocked, his service able and immediately available. With Peerless "After-Sale-Service is part of the Package."

Putting Ideas to Work

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

Peerless Pump Division

Plants: LOS ANGELES 31, CALIFORNIA and INDIANAPOLIS 8, INDIANA

ADDRESS INQUIRES TO: 301 West Avenue 26, Los Angeles 31, California or 2005 Northwestern Avenue, Indianapolis 8, Indiana

Please send me these Peerless Brochures:

☐ Deepwell Turbine Pumps
☐ Deep & Shallow Well Jet Pumps
☐ Sprinkler Irrigation Pumps
☐ Please send name of nearest distributor

Name_____

Address_____

Town_____ State_____ FQ

peculiar to Florida. The railroads own a good deal of this rough land—the state holds the bulk of it not owned by private individuals. For clearing, it is leased free for two years. After that the lease runs to $10 an acre. Land already cleared leases for around $40 an acre.

Clearing a piece of land, leveling and throwing up dikes, dredging out the irrigation ditches, and drilling the irrigation wells, costs about $200. For outright purchase the land runs from $150 an acre wild, to $400 an acre cleared.

Two crops of cucumbers and tomatoes and one crop of peppers and a crop of tomatoes can be taken off each year. The three crops are rotated. After three or four years the grass comes in and the mineral build-up is too high for good crops. The field is planted in cover and is allowed to remain fallow for a year or two. The farmer usually moves to another lease.

The only investment is machinery and enough cash to meet the immediate payroll during harvest. Rockow has two 720 John Deere Diesels, a 420 John Deere gas tractor, three trucks, a 400-gallon sprayer, an assortment of disks and middle busters, a land leveler, and drills.

Water is handy and cheap. Two artesian wells throw a six-inch stream into the ditches at the turn of a valve. The two wells on Rockow's 130 acres are 710 and 420 feet. The cost of drilling was $1.50 per foot plus casing.

While this area of Florida gets more than 50 inches of rain per year, irrigation is the big factor in the large yields. During the rainy season the ditches may overflow and the irrigation procedure is reversed. Rockow has two 20-inch pumps which pump the excess water out of the ditches into a neighboring slough.

A crop requires a ton and a half of 4-7-5 or 4-8-8 fertilizer a year. Occasionally to get the seed up in a hurry a hot shot of nitrogen will be drilled in with the seed. The 400-gallon sprayer is on duty all during the growing season. Twice-a-week applications for disease and insect control go on the tomatoes and cucumbers.

A small, but very necessary expense, is bee rental. Tomatoes, peppers, and cucumbers would produce only a fraction of a crop without the help of bee pollination. Rockow rents 20 to 25 hives during the growing season at $5 per hive. "Bees are a good business down here," he says. "I've often thought I might get into that when I'm too old to drive a tractor."

Rockow hauls his tomatoes, cucumbers, and peppers into Fort Myers where they are graded and packaged by a cooperative. They then go to a dealer who markets them. An acre of cucumbers, his big crop, will produce 600 to 700 bushels. The price varies from $1 to $6 a bushel. After the frost in 1957 the price sky-rocketed to $10, but Rockow had none to sell. There are six grades of cucumbers, a number of grades of tomatoes, and three grades of peppers. Rockow has grown other vege-

tables but prefers to specialize on the old standbys, cukes, tomatoes, and peppers.

"You couldn't get me out of Florida with dynamite," he says. "I like being outside without freezing to death. I have a chance to make big money here with a minimum of investment in machinery, and no capital investment in land or buildings. My family likes it here, too—I have two boys and two girls, and we're busy with a dozen-and-one things which you don't find in the North."

Rockow, like the Days, takes a vacation in reverse every year. As soon as the last of his crops is off in June, he stows his family in a station wagon and drives to his father's farm in Iowa. "We spend two months there every year," he says. "I putter around on the farm—sometimes drive the combine for my father—but mostly I loaf. We escape the severe summer heat and come back in September raring to get at the cucumbers."

Hobbs the Flower Man

In 1937 Harvey Hobbs was an ordinary farm hand, working in the peanut and cotton fields of Georgia. The going was tough. There was a lot of cheap farm labor around, and very little opportunity of going any place on one's own.

Then he made a visit to Florida. Things were moving down there and wages were high. He got a job with the A. & W. Gladiolus Company, doing all sorts of work, driving a tractor, harvesting flowers, grading. He stuck to that job for ten years, learned how to grow and market flowers, and in 1947 went into the flower brokerage business for himself. He found that the demand for Florida flowers far exceeded the supply, and almost at once began growing gladioli himself.

In 1952 he teamed up with Burdette Coward, who had formerly been in the greenhouse business in Knoxville, Tennessee. Coward and Hobbs grow mums and sweet corn together; Hobbs operates his gladiolus farm on his own and 160 acres of sweet corn at Foley, Alabama. The combined Hobbs-Coward operation grosses well over a million dollars a year. At peak season they employ 200 workers, 75 the year-'round.

They have 1,000 acres at Ft. Myers in flowers and sweet corn. This permits a year-'round operation, both in flowers

HOLLY

4 Hardy American Holly, pyramidal tree-type, red berries. 2 Jap. Holly, evergreen shrub-type. All plants 4" to 6" with mass of roots from 2½" pots. Postpaid at planting time.

Ask for FREE Evergreen Catalog

6 Plants $5.95 POSTPAID

MUSSER FORESTS Box 6-C INDIANA, PA.

6 RHODODENDRON and 6 AZALEAS

All for ONLY $5.95

Strong 2-year transplants 4 to 8" tall. Mass of roots, large leaves. Rhododendron, from red flowering stock. Azalea, hardy, mixed colors. Postpaid at planting time.

Free Catalog.

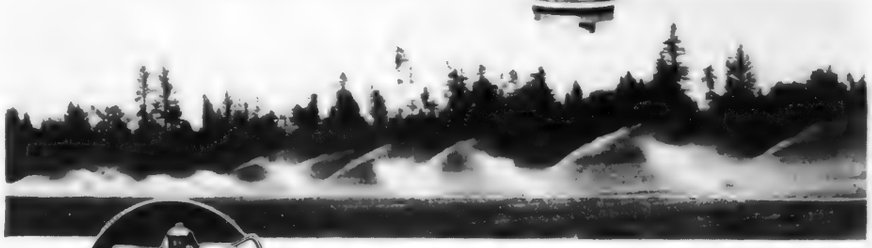
MUSSER FORESTS, BOX 6-C Indiana, Pa.

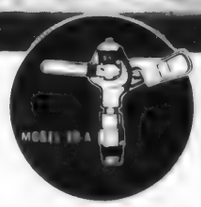
Every Drop a Boost

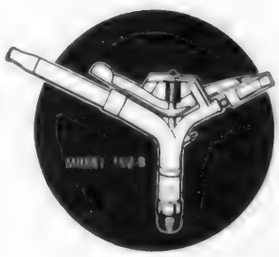
when you use

RAIN BIRD SPRINKLERS

NEW RAIN BIRD NO. 30-TNT sprinkler has an improved spring-loaded seal that locks out abrasives, sand and dirt ... assuring long, trouble-free operation even under the severest conditions.







Better crops ... bigger yields are always the happy ending to irrigation stories that begin with the installation of Rain Bird Sprinklers.

No Johnny-come-lately to the sprinkler irrigation field, Rain Bird has pioneered the major sprinkler advancements. The swinging spoon-type arm with spring to give slow controlled rotation ... the removable bearing seat ... the double bridge support for the fulcrum pin ... arm bearing protection against abrasives ... the part circle sprinkler ... are just a few of the Rain Bird advancements that have set the pace for the sprinkler industry.

So, when we say "Check with Rain Bird *first*," it's sound advice, for Rain Bird is always *first* in irrigation sprinkler advancement ... first with those who know the engineering skill and the long history of achievement that's built into every Rain Bird sprinkler.

See your Rain Bird dealer today.
Helpful literature free on request.

Remember, if it hasn't the name ...
it isn't the same. Specify **RAIN BIRD!**

NATIONAL RAIN BIRD SALES & ENGINEERING CORP.
AZUSA, CALIFORNIA
RAINY SPRINKLER SALES
Division of L. R. Nelson Mfg. Co., 609 W. Lake St. Peoria 5, Illinois
RAIN BIRD SPRINKLER MFG. CO. (CANADA) LTD.
54 East Cordova Street, Vancouver 4, B.C.

and sweet corn. Hobbs has a Cessna 182 which he uses to commute between Florida and Alabama. In Florida, ground is prepared in July and August, planting started in September, and the first flowers come off about mid-November. Cuttings of both glads and mums are made seven days a week until April. The same is true with sweet corn. In Alabama, planting is started in mid-April and continued at intervals through June. Final corn is harvested in September. Burdette and Hobbs have 500 acres of corn, most of it going to northern markets.

While Hobbs started his operation virtually on a shoestring, he put in ten years learning the game. He doesn't advise the northerner to jump into a Florida operation too quickly. "Come down here and get a job," he says. "Learn how it is done in Florida, and then make a go for yourself."

Capital investment is necessarily high for flowers. Controlled irrigation, heavy fertilizer, high labor requirements, and an expert knowledge of markets are a part of the long list of skills which the beginner must learn. Several acres of Hobbs' mums are grown under cloth.

"We have a sub-tropical agriculture here," Hobbs says, "and even the best northern farmer has to learn all over again. If you want to lose faith in your green thumb and your business ability, just come down here and plunge in."

Hobbs believes that anyone willing to work hard has a better chance for success in Florida than in the North. He has management acumen which he combined with hard work to build up a business from zero in 1937 to his high gross of 1957.

Hobbs is a busy man, but he is also a relaxed man, and finds time for the well-known offerings of the Florida scene. He plays golf, fishes a great deal. He leaves his expansive home in Ft. Myers at an early hour, before 7 a.m., and is in the field, 12 miles north on Charlotte Harbor, until mid-morning. Then he comes back to his office in downtown Ft. Myers and takes care of the day's business, dictating letters, answering calls, directing shipment and selling. Corn and flowers go north by train, truck, and plane every day during the season. He makes occasional flights to Alabama and, if pressed, can find time 'most any day for a game of golf or a fishing excursion.

"I don't know of a more satisfying life," he says. "If I didn't grow flowers for a living, I would grow them as a hobby. And I always wanted to live in a place where I could go fishing and play golf the year 'round. What more could a man ask than flowers, fish, and golf, all in the same place, 365 days out of the year?"

The food needs of Florida's burgeoning population are far ahead of what the state can supply. It will be a long time before the farms can supply milk, beef, and pork in the quality and quantity needed for home consumption. There are always the citrus, winter vegetables, and tropical fruits for Northern markets as well. A great deal must still be learned about adapting alien crops and livestock to the soils and climate. But there is ample land waiting for the plow and the man to guide it. As Carl Day says, "If Florida is a good enough place for a vacation, it's a good enough place to make a living."

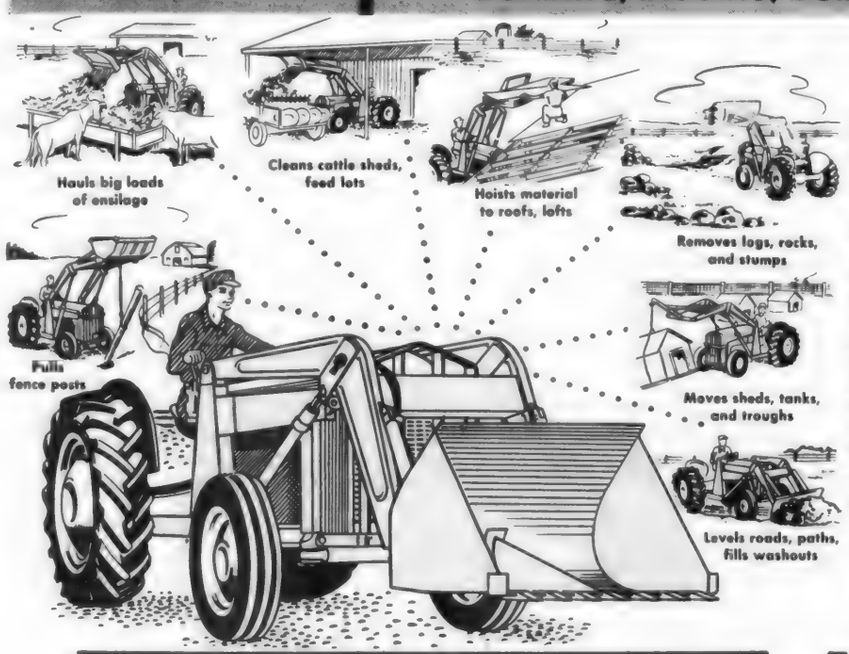
GRAIN DRYERS

CONTINUOUS FLOW
—gives highest capacity
—most unifrom drying

LABOR SAVING
—no extra labor required
—just dump grain
—grain is automatically and continuously fed, dried, cooled and carried to dry bin
—entire operation is automatic
Write today for FREE literature

MEYER MFG. CO.
Box 4952 Morton, Ill.
MAKERS OF FAMOUS MEYER ELEVATORS

what's it worth | **TO HAVE ONE IMPLEMENT HANDLE YOUR LIFTING, LOADING, DIGGING, DOZING, and STACKING JOBS?**


Hauls big loads of ensilage
Cleans cattle sheds, feed lots
Hoists material to roofs, lofts
Removes logs, rocks, and stumps
Pulls fence posts
Moves sheds, tanks, and troughs
Levels roads, paths, fills washouts

THE DAVIS LOADER
WILL SAVE YOUR BACK A HUNDRED WAYS!

You can get more utility out of a Davis Loader than any other implement on your place!

Just look at all the jobs it will do. Name a digging, dozing, stacking, loading, clearing, or lifting job, your Davis Loader will do it! Yes, it can save your back in a hundred different ways!

It pays to buy a loader in the Davis class. Not only will it do more for you, but it will last longer. Its rugged, box-frame construction; superior hydraulics; maximum visibility; "step-in" design, plus quality fabrication means dollars to you in the long run.

Add it all up – no wonder Davis is the one that others always follow!

Davis Loaders and Backhoes are available for all popular models of International, Ford, Fordson Major, Ferguson, Case, Massey-Harris, Allis-Chalmers, Oliver, John Deere, Minneapolis-Moline, and Work Bull Tractors.

SOLD AND SERVICED EVERYWHERE BY BETTER DEALERS

For the name of your nearest dealers call Western Union by number and ask for Operator 25 . . . or send coupon. *Please specify make of tractor.*

the DAVIS BACKHOE is BEST for FARM USE . . .

Dig at any angle up to 200 degrees, even flush against fences, barns, etc. Ideal for trenching, cleaning ditches and canals, digging septic tanks. Features 10,000 lbs. breakaway for frozen ground; wide visibility, operator comfort, low price.

MASSEY-FERGUSON INDUSTRIAL DIVISION
1009 SOUTH WEST STREET WICHITA 13N, KANSAS

Please send me literature and name of dealer on Davis Loader____
Davis Backhoe____to fit a_____tractor.

NAME _____

ADDRESS_____

TOWN_____STATE_____

DRYING—IN STORAGE OR FOR STORAGE

(*Continued from page* 63)

take the weight off the tires either by blocking up the frame or pulling up the wheels like an airliner's landing gear so the frame sits on the ground. Then you hook up the tractor PTO which runs the fan and conveyors. The tractor-powered machines depend on the tractor battery to power their automatic controls and have a 6-12 V. switch.

Then there are the portable dryers which are practically furnaces mounted on a trailer. You connect to bin, mow or false-floor wagons by a canvas duct. Smaller ones are mounted on wheelbarrows and you trundle them hither and yon. There's one you can pick up like a suitcase and park under your tractor to warm it up to starting temperature on a sub-zero morn, or fetch along to the shop when you are stripping tobacco or doing a tractor valve job.

The Wagon Dryer

The wagon batch dryer consists of a wagon with a false floor, built-in furnace and PTO blower. You dump in the first combine load, spread it evenly, and dry that while the combine is refilling its tank. Ditto the second, third and fourth loads. Then you turn off the fire and let the fan cool the grain on the trip to the barn. This dryer can be used to batch-dry hay, too. A harvest set-up, using wagon dryers, requires a careful evaluation of the harvesting and storage equipment so that operating balance can be maintained.

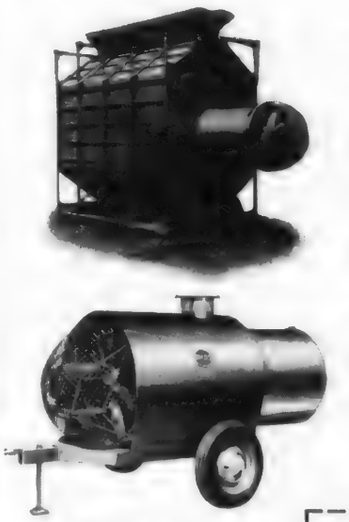
There's another minor split in the batch-dryer industry regarding direct-fired and indirect-fired burners. The direct-fired puts the burned gases through the grain. The indirect-fired vents the combustion products out the chimney and heats pure clean air flowing around the heat exchanger as does your house furnace. The argument for indirect firing is lessened fire danger, no discoloration or impartıng of odors to the grain and it gives complete safety.

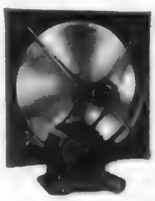
The argument for direct firing is that it costs 25 per cent less for fuel. Automatic controls guard against fire. In tests, burners often were set too rich which caused them to smoke.

Ask the Man Who Owns One

Let's look at some farmers' experiences. These are the words of farmers and often the farmer doesn't know what the moisture content of his corn is when he starts. He knows what his oil or gas bill is and he knows the dryer does the job. Harlan Amos, Hastings, Nebraska, says that with a batch dryer in the 500-bushel range costing near $5,000 he can pull 15 to 20 per cent corn down to 12½ per cent in 1¼ hours at about one cent a bushel burner fuel cost. He custom-charges 10

You Can Solve Any Crop Curing Problem with Hartzell Drying Equipment





Hay, shelled or ear corn, small grain, peanuts, soy beans, tobacco . . . it makes no difference what crop you want to dry, Hartzell has the right equipment for the job.

Rain, wind or hail damage to standing crops . . . moisture, mold or insect damage to stored crops . . . Hartzell can help you stop them all.

Hartzell's complete line of drying equipment includes portable dryers, batch drying bins and fans for natural air drying. And you can trust your Hartzell representative to recommend the right equipment, because no matter what your job calls for, he can supply it.

For complete details on Hartzell drying equipment which can increase the cash value of the crops you sell and the feed value of those you keep, just fill out and mail the coupon below.

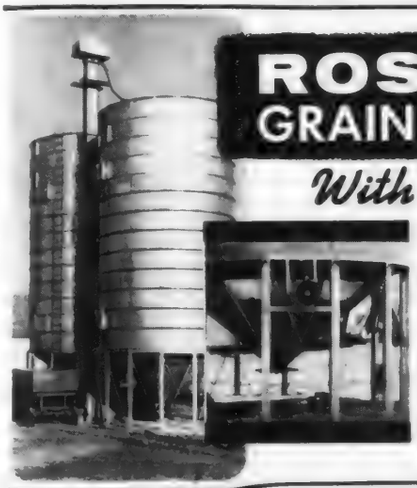
Hartzell Propeller Fan Co., Dept. F, Agricultural Division, Piqua, Ohio

Please send me more information on ( ) Hartzell portable crop dryers ( ) Hartzell batch drying bins ( ) Hartzell fans for natural air drying.
I am particularly interested in drying the following crops:_____

Name_____

Address_____

City_____ State_____



ROSS *Galvanized Steel* GRAIN STORAGE TANKS

With FORCED AIR COOLING

- Maintains market quality—prevents moisture migration
- Eliminate periodic "turning"—reduces grain damage
- Built to commercial standards—easy to erect
- Fireproof—rodent proof—economical—durable
- Gravity feed—eliminates scooping—saves labor

Send Today for Bulletin and Prices

ROSS EQUIPMENT COMPANY
1201 Warder Street, Springfield, Ohio

HARVEST EARLIER . . . REMOVE THE WEATHER RISK!

CROPGARD
FARM DRYER

By harvesting earlier you reduce field losses, increase yields, secure better market prices, get fall plowing done . . . and remove the constant weather risk. You can accomplish all this *if you have a Cropgard Dryer.*

TAKE THIS DRYER *to the crop!*

This is the only *completely portable* farm dryer that can be moved when loaded. P.T.O. powered. Operate it in the field to save time, money and extra handling . . . for shelled corn, soybeans, milo and small grain.

BIG DRYING CAPACITY

More drying capacity per dollar invested than any other dryer—*guaranteed!*

LOWEST SELLING PRICE

With all its exclusive, patented features, Cropgard sells for about half the price of other big capacity dryers. It can be A.S.C. financed, too!

Write for free illustrated bulletin and name of your nearest dealer.

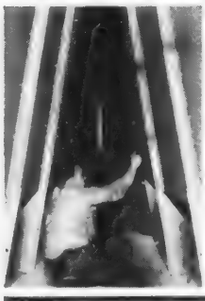
LAKESHORE MFG. CO. • 3338 Republic Ave., Minneapolis 26, Minnesota

LENNOX

"Super 600" batch bin drys 75-600 bushels

- *Heat capacity 4,200,000 Btu's plus HUGE air delivery*
- *Super-fast! Loads, unloads up to 1500 bu. per hour*

America's finest engineered dryer for these reasons! Automatic metered recirculation. Air cleaner removes trash lighter than grain. 16 ga. perforated side walls offer maximum 33% free area. Temperature control panel provides automatic shut-off, both heat and fan. Bucket elevator telescopes for transporting. Available with PTO or electric drive; LP gas or oil fuel. Complete safety controls. All units factory wired and fire-tested.



Exclusive Canvas Closure Stops Heat Waste

. . . when drying at less than full capacity. Can be securely fastened at various locations along inside passageway. Keeps heat moving only through sections where crop is drying.

FREE NEWS SERVICE

SEND TODAY

ON CROP DRYING

Get important crop news throughout the year. Valuable articles on hay, corn, grain. Permanent file folder —everything free! No obligation. Send coupon below.

LENNOX Industries Inc.
FARM EQUIPMENT DIVISION
Dept. FG-1 • 1701 E. Euclid • Des Moines, Iowa

Please enter my name to receive your free news service on Crop Drying.

Name.....

Address.....

Town.....State.....

cents a bushel for field drying of 20 per cent corn or over. "In three to five years," he predicts, "all corn will be dried."

Weldon Lowenstein, Kearney, Nebraska, has three years' experience in the 400-bushel range. He custom picks-shells-dries for 18 cents a bushel, dries for 10 cents a bushel. He figures 4 cents a bushel using 10½ cent propane. Field losses induced him to start drying. Too, he says by drying he can get his corn on the market before harvest forces the price down. He dried 31,000 bushels for $697.85 burner fuel (propane) and tractor fuel (diesel) in 1956.

Ed Schliep & Sons, Fairfield, Nebraska, begrudged the amount of corn knocked down by the wind while field drying. That's why they went to drying in 1955. They cut their field loss, shortened picking time, and permitted picking 2 to 3 weeks earlier. They have two big batch dryers set permanently beside their 26,000-bushel elevator.

Their set-up is entirely automatic. They dump into a pit, elevate to a holding bin, gravitate into dryer hopper. After drying, grain is conveyed back into pit, then into truck or silo. They dry 10,000 to 15,000 bushels of corn and milo each year in addition to wheat, and figure costs at 5 cents a bushel on natural gas.

Jim Shuck, Edgar, Nebraska, counts these benefits from his dryer in the 400-bushel range: He markets corn earlier at a higher price; less field loss; less gleaning; less storage space (grain shrinks as you take water out; besides, cobs take up half the storage space). He figures 2 to 3 cents a bushel fuel cost.

H. H. Carnahan and his sons, Stockdale, Kansas, paid $3000 for a wagon-type dryer. He says it keeps up with his 2-row combine o.k., won't quite pace his 10-foot self-propelled in heavy milo. He dries 170 bushels of 20 per cent milo in one hour, plus 15 minutes cooling, uses $1.30 worth of burner and tractor fuel. The Carnahans got 50 cents cwt. premium for their dried milo.

Summing up, heated-air dryers all work on the principle of heating the air so the relative humidity will be dropped. Then the air will pick up more moisture. Whether you buy a recirculating or non-

CHRISTMAS TREES

Turn wasteland into profit. Our famous Christmas Tree Growers' Guide tells you how. Write for free copy.

OR FOREST TREES

FREE Catalog

MUSSER FORESTS, BOX 6-G Indiana, Pa.

25 for $5. TREES . .

3 to 5 yr. healthy, selected trees, 5" to 16" tall. 5 each of: Colorado Blue Spruce — Norway Spruce — Austrian Pine — Scotch Pine — Douglas Fir.

Postpaid at planting time
Write for Free Evergreen Catalog

MUSSER FORESTS BOX 6-G Indiana, Pa.

your best buy*

* stretches the years between painting...
* right paint for every type of surface...
* endorsed by leading painters...

FREE! 44-page "Facts About House Painting" book. At your dealer, or write The Sherwin-Williams Co., 1114 Midland Bldg., Cleveland 1, Ohio.

FACTS ABOUT HOUSE PAINTING

THE SHERWIN-WILLIAMS CO.

WYETH
ANIMAL HEALTH TOPICS

PINK-EYE STRIKES FAST

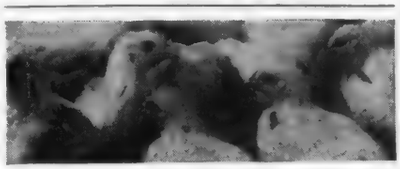
TRIBIOTIC OINTMENT BRINGS FAST RECOVERY!

Pink-eye, or infectious keratitis, has two unwelcome characteristics: sudden onset and rapid spread throughout a herd.

TRIBIOTIC® OINTMENT has an exclusive, triple-action formula for fast recovery from pink-eye. Its three antibiotics (100,000 units penicillin, 50 mg. dihydrostreptomycin sulfate, 5000 units bacitracin) mean effective therapy against a very wide range of causative organisms. Its special spreading base insures complete coverage of the eye surface thus promoting rapid healing.

Completely aside from its actions against pink-eye, TRIBIOTIC OINTMENT also enjoys wide-spread use in mastitis, where its unique ability to reach all areas of the infected quarter has proven of great advantage.

TRIBIOTIC is available in handy squeeze tubes with plastic nozzle, 3.75 Gm. per tube.



PROMPT RETURN TO FEED ESSENTIAL AFTER AIR SAC INFECTION

The most serious effect of air sac infection (or CRD) is one of *economy;* birds with air sac infection exhibit marked reduction in food intake. Weight gains, therefore, are slower and more expensive.

BICILLIN®-SM puts birds back on feed *fast.* And because it remains in birds four times longer than ordinary penicillin, it *keeps* them on feed, minimizing relapses and reinfections. BICILLIN-SM contains long-acting bicillin *and* dihydrostreptomycin—for effect against both the primary air sac infection and against secondary bacterial infections.

It has *no oil* to delay marketing or downgrade carcasses.

BICILLIN-SM comes in bottles of 500 cc. It's tailor-made against air sac infection!

DOUBLE-ACTION AGAINST WINTERTIME PNEUMONIA OUTBREAKS
WITH ONE SHOT!

While there are many predisposing factors contributing to the incidence of pneumonia, certainly exposure to harsh winter weather is one of the most prevalent. The sudden temperature changes of winter—snow, cold rains and high winds—all combine to increase sharply the incidence of this disease.

Because the onset of pneumonia is sudden and because its treatment should be continued for at least four days, truly effective therapy must combine both high initial potency and prolonged preventative action.

INJECTION BICILLIN FORTIFIED meets these requirements exactly. The combination of procaine penicillin G for high, immediate blood levels and benzathine penicillin G for prolonged levels (*lasting up to five days*), provides both effects *in a single dose.*

To many farmers, harassed by wintertime health measures, this one-shot convenience of INJECTION BICILLIN® FORTIFIED is readily appreciated.

INJECTION BICILLIN FORTIFIED is also ideally suited for treatment of shipping fever, foot rot and navel ill. It is available in 10 and 50 cc. vials (300,000 units per cc.), in 1 cc. TUBEX® sterile needle units (600,000 units per cc.), and in 4 cc. disposable syringes (2,400,000 units each).

To Keep Animals Healthy *Economically*
RELY ON *WYETH* ANIMAL HEALTH PRODUCTS
Proved *Safest!*

Questions farmers ask most often about

vitamin D nutrition

Q: What does vitamin D do when I feed it to my livestock?

A: Vitamin D prevents rickets and helps livestock use calcium and phosphorous properly and efficiently for building sound bones and meeting other body needs related to rapid growth, efficient feed utilization, good fleshing and well-being of the animal.

Q: What happens if my livestock do not get enough vitamin D?

A: Symptoms of severe deficiency (rickets) are stiffness, bowed legs, arched back, swollen joints, difficulty in lying down or moving about, hair coat dull and coarse, and over-all appearance of unthriftiness. Mild or borderline deficiencies which do not cause symptoms severe enough to be noticed occur far more frequently and are the ones that cause the greatest loss in profits through slower growth and poorer feed utilization.

Q: Won't my livestock get enough vitamin D from sunshine and hay?

A: Sometimes they will, but sunshine and hay are highly variable and unpredictable sources of vitamin D. Feeds adequately fortified with vitamin D provide protection. Look for the words "Irradiated Dry Yeast" on the feed tag.

Q: Do dairy cows need vitamin D?

A: Yes. Work at the South Dakota Experiment Station showed that dairy cows become stiff, lame, develop swollen joints, arched back, difficulty in moving about or lying down, fail to come into heat, and have weak calves with poorly mineralized bones and rickets-like appearance. There was also evidence of poor appetite and marked decrease in milk production.

Q: Can Milk Fever be prevented? If so, how?

A: Yes. Fifteen years of research at the Ohio Agricultural Experiment Station have resulted in a highly effective method of prevention.

1. Feed 30,000,000 units of vitamin D_2 daily, preferably in two equal feedings, for 5 to 7 days before calving. 2. Provide plenty of calcium and phosphorous. 3. Discontinue feeding the vitamin D_2 at the end of 7 days even though cow has not calved. 4. If calving occurs before the vitamin D_2 has been fed for 6 days, feeding may be continued for 1 day after calving.

Thirty million units of vitamin D_2 are supplied by 7½ ounces of Fleischmann's FIDY Irradiated Dry Yeast, Type 142-F.

G. C. Wallis

Have You a Question?

If you have questions about animal nutrition concerning vitamin D fortification or Milk Fever prevention, write to Dr. G. C. Wallis, Director of Nutrition, Agricultural Department, Standard Brands Incorporated, 625 Madison Avenue, New York 22, New York.

Standard Brands Incorporated

New York 22, New York

recirculating dryer is perhaps a matter of salesmanship. Whether you buy a batch dryer or an in-storage dryer is based—or should be—on coldly calculated economics and timing.

Two considerations are of prime importance in in-storage drying: (1) make sure you have an air-tight seal all around under the false floor, at every point in bin wall and door; (2) give the air plenty of room to get out after it has passed through the grain. Even leaving the cap on the bin roof can cut efficiency.

Enter the Humidistat

An invention of the age of automation lets you use dry unheated air when you've got it, and add heat when you need it. It's the humidistat. The humidistat is for relative humidity what the thermostat is for temperature. If you've got a blower and a little burner hooked to a humidistat, you can rest easy. As long as the relative humidity of the air is below 55 per cent, the device utilizes the drying power in natural air. When the relative humidity rises to 55 per cent, it kicks in the burner, delivering a small amount of heat to dry the air and continue the grain drying.

A blower and burner and humidistat cost less than $600 for a 1,000-bushel capacity bin; of course it can be moved from bin to bin. They don't cost much to run. The burner uses about one gallon of propane an hour, and it doesn't burn all the time. On a day when the air is dry the burner won't use any fuel at all. The advantage of this set-up is that it can't overheat or over-dry the grain. Nor can it give you grain that's dry in one layer and wet in another. It dries down to 13 per cent all the way through. The reason for this is that the humidistat is always sampling the volume of air that is moving through the bin; it never calls for heat to be applied to air that is already dry enough to do a job. For instance, on a dry, sunny day when there is danger of overdrying if heat is added, the humidistat will not call for heat.

The burner is small, ranging from 70,000 to 200,000 BTU/hr,

CAMPBELL GRAIN DRYERS

Campbell Dryers give you *designed* simplicity. This means low operating cost, minimum maintenance cost and high quality drying results. Experience gained in the design and installation of thousands of dryers for farm, elevator and terminal is your assurance of quality and performance. Continuous flow or batch operation —a size for every drying requirement. Write for Free literature.

DISTRIBUTED BY CORN STATES HYBRID SERVICE • DES MOINES, IOWA
MANUFACTURED BY CAMPBELL FARM DRYER COMPANY • DES MOINES, IOWA

compared to the 4-million output of a 500-bushel batch dryer. Supplemental heat using a humidistat is strictly an in-storage dryer, requiring about 8 days to dry 1,000 bushels in a bin. You can easily move the unit from bin to bin. You have your choice of a propane, natural gas, or oil burner.

Bill Johnson at Bethany, Missouri, got 850 bushels of milo off 10 acres. He feeds his grain, but he well knew that his 18 per cent moisture grain wouldn't keep. Figuring on having it for quite a while, he was in no great hurry. So he invested in a 1,000-bushel bin and a $600 supplemental heat dryer. Now that he's equipped, he figures on harvesting his wheat and oats a little earlier than usual to beat the period of shattering and the risk of June storms.

Frank Wilson at nearby Gilman City says this same equipment reduced the top layer in the bin from 18.74 per cent moisture to 14 per cent in 8 hours. (The top layer is the last to dry, since drying proceeds from the bottom up in this type of installation.) This is faster than the manufacturer claims.

Wilson said his equipment paid for itself on his first crop of rye. By drying it, he got 25 cents a bushel bonus as seed. Still, the biggest advantage in his mind is, "You harvest when you're ready."

Ern Morgan at nearby Unionville decided the loan price of $2.06 a hundred for milo wasn't enough. He stored it over winter, conditioned it with a supplemental-heat outfit, maintained 90 per cent germination, and wholesaled it for seed the following spring at $4, less cleaning and bagging.

Burleigh Grimes, the Spitball King of the major leagues, retired from pitching pro ball last year to farm at Trenton, Missouri. He decided he wanted to house cattle instead of cobs in his barns so he put up a couple of 1330-bushel bins with interconnected supplemental-heat dryer.

He, too, says, "You can harvest when you're ready." He adds, "I want to leave the cobs on the field where they belong and save shelling cost." He's holding his milo for best price or for loan, and you can't do that when it's high in moisture.

Drying in Reverse

Then there's the story of the big-scale farmer who bought a supplemental-heat outfit to put moisture back *into* his corn. He discovered he was marketing corn as low as 9 per cent near the end of the season. He got no premium for corn that had a moisture content of less than 13 per cent; he figured this extra dryness, by loss of weight, was costing him $10,000 to $15,000 a year.

His original idea was to rig up a fan with water dripping over it to blow moisture back into the grain. Being solemnly warned, however, of the penalties for adding anything to grain for sale, he

The Missing Link for High Moisture Grain

AUTO HUMIDITY CONTROL

DRY-O-MATION

NATURAL DRYING

Edward F. Piening
Rt. 6, Lincoln, Neb.

With the DRY-O-MATION System of grain conditioning the supplemental heater attached to the fan automatically and instantaneously supplies heat to maintain natural drying conditions that are always favorable. *It's the first automation in grain storage!* DRY-O-MATION is drying in storage! No handling! Even good enough to make the best seed! The humidistat controls the temperature and humidity of air moving through the bin. It calls for warm air when the need for it is indicated; only natural air when that is sufficient. The result: *uniform conditioning of every layer of grain . . . in every part of the bin.* DRY-O-MATION can't over-heat . . . won't over-dry your grain. *DRY-O-MATION with Farm Fans Equipment is standard with many of the leading manufacturers of storage bins. Insist on it.*

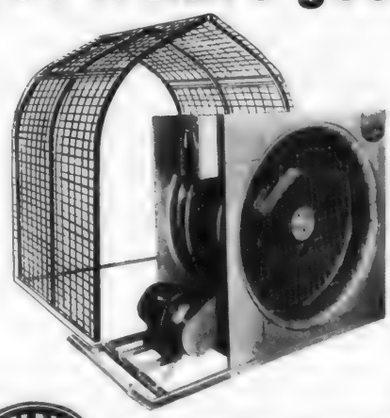
Write us for your copy of "The DRY-O-MATION Story." It's FREE and it will pay you to read it. When you write us, please be sure to mention the type, size and brand of storage equipment which you have or in which you are interested.

FARM FANS / DIVISION OF EWING FOUNDRY, INC.
424 S. Pennsylvania St., Indianapolis 25, Ind.

NEW LOW COST MOISTURE TESTER

Tells you when moisture content is just right for mow drying. No more guesswork. You can test your hay on the spot, get reading in minutes. Accurate within 1%. If you store hay or put up grass silage, the new CLAY Moisture Tester can quickly pay for itself. Priced at less than $25.00 at your local Clay Dealer. (Write for name of Dealer, if in doubt.)

How to be sure you'll have good hay this year

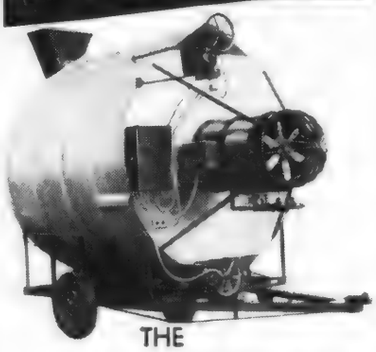


What would *you* do without hay this year?

You needn't worry about weather loss if you own a CLAY Moisture Tester and natural air Crop Drier. Cut hay at peak quality and have it in mow within 24 hours without damage from sun or rain. **Often pays for itself first year** by saving up to 90% of protein otherwise lost by field curing. Power costs only 50-90¢ a ton. Dries up to 100 tons at a time. Write for information on how CLAY natural air drier can be converted to heated unit for drying shelled corn and small grains. Also ask for FREE crop drying manual that describes savings, plans and cost of installation.

CLAY **CLAY EQUIPMENT CORPORATION** • 384 Fulton Street, Cedar Falls, Iowa

YOU'VE NEVER SEEN ANYTHING LIKE IT....



THE
AMERICAN
completely automatic
GRAIN DRYER
ONE BUTTON CONTROL • OPERATES UNATTENDED

Check these outstanding features

✓ AUTOMATICALLY performs **all** drying operations—loading, drying, shrinkage, cooling and unloading, continuously repeating full cycle until entire supply of wet grain is exhausted. Then shuts off automatically.
✓ ADVANCED ENGINEERING—Simplicity of design: **one** push button controls operation.
✓ RUGGED CONSTRUCTION—Built to take hard use.
✓ LOW COST—Unmatched drying capacity per investment dollar—unbelievably low cost operation—lowest horsepower requirements ever.
✓ CAPACITIES—Models to handle requirements ranging from smallest farm to largest elevator.
✓ COMPLETE—An entire handling system which will fit into your present operation without special adaptation.
✓ SAFETY—New unmatched standards controlling pilot and power failure, excessive heat, low gas supply. Has automatic ignition. Burns low-pressure LP gas vapor with **BTU capacities up to 10,000,000** per hour.

MAIL TODAY
AMERICAN FARM EQUIP. SALES CO.
Dept. FQ
Crystal Lake, Illinois
Please send me details on your new American Automatic Grain Dryer.

NAME_____
RFD_____
TOWN_____ STATE_____

contented himself by aerating the overdry corn on damp days, thus legally bringing its moisture content back to 13 per cent.

He starts harvesting at 35 per cent, uses the supplemental heat feature to bring it down to 13 per cent. As the season progresses and corn dries on the stalk, he reverses the process to add moisture which nature has robbed him of. Here is true grain conditioning.

Moisture Tester

Some folks consider drying grain without a moisture tester as being penny-wise and dollar-foolish. That last ½ per cent of moisture is the most expensive moisture to get out of the grain. Besides, it's costly to over-dry.

You have a wide choice in moisture testers. The standard of the grain business is a $495 Steinlite electronic tester that very few people other than elevators buy. Or you can get factory-rebuilt ones of this variety for $195, which carry a 1-year guarantee.

For just under $100, you can get accurate testers. Some are battery-powered so you can fetch them right along to the dryer. Some you plug in, have to use in the kitchen or barn. They're quick, easy and convenient to use.

Aeration

Aeration is a means to keep conditioned grain in condition. Any procedure used to cool and ventilate stored dry grain is known as aeration. This can be done by turning grain frequently or moving it from bin to bin—both costly in time and labor. Circulating air through the grain accomplishes the same end at much lower cost.

Grain in steel bins in batches of 2,000 bushels or more may be perfectly uniformly dried. But convection currents descend around the cold walls, rise in the center, carrying moisture with them. The moisture condenses under the cold roof, and there is a wet spot that spoils.

Drying to 13 per cent and cooling to 35 degrees prevents convection currents concentrating moisture under roof, eliminates risk in a weather-tight bin.

Aeration—moving about 1/10 cubic foot of air per bushel per minute through the grain at intervals during the year—prevents convection-induced moisture from collecting. Authorities warn against depending on aeration as a holding method if the grain has more than 15 per cent moisture content.

Says W. K. Hukill, USDA agricultural engineer at Ames, Iowa: "If grain goes in to storage at 25 or 30 per cent moisture, you should run your fans continuously—even when the humidity of the air is above 90 per cent—to cool the grain and prevent spoilage."

Going back to Weldon Lowenstein of Kearney, Nebraska, we find he has a 33,000-bushel flat storage building. He aereates it during the winter to keep it

FARNAM Fully Automatic
Rope-Wick OILERS

The *only* low-cost cattle oiler that is *fully automatic*. Remember, if an oiler isn't automatic, it isn't worth installing. Farnam Rope-Wick Oilers are not just "backrubbers", they are completely automatic oilers, the result of more than 10 years' experience building oilers. Cattle use them better. Get better coverage of insecticides. Can't tear them up, and won't wear them out for years to come. Easy to install. Attach to *any* post, *any*where.

Better Results! HERE'S WHY!
Giant 3" Marine Rope rubbing element provides perfect rubbing and scratching surface. Oils cattle thoroughly, all over! **5-Gal. Oil Supply** lasts for weeks. Keeps rope saturated at all times. **Automatic Valve** releases oil every time animal uses the oiler. Entire unit is **Spring Protected** from damage and excessive wear.

Accept This "FREE TRIAL OFFER"!
Try Rope-Wick Oilers at our risk! Write for Illustrated Literature, our low prices, and 30-Day Trial Plan.
FARNAM CO. Dept. 47 8701 No. 29th, OMAHA, NEBR.

WET CORN?

Low-cost Louden natural air Bin-Dri can save enough corn to pay for itself

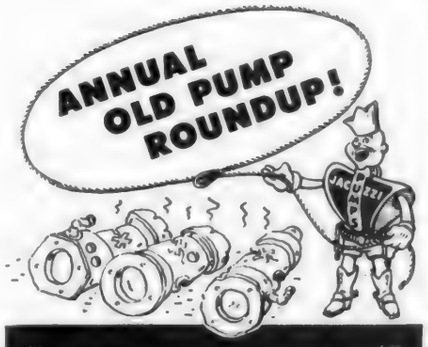
The Bin-Dri fits all types of round and rectangular bins.

It's a fact. You don't have to spend up to $4000 for drying equipment. Louden's efficient natural air Bin-Dri can be installed complete for as little as $800. At $1.25/bushel, the Bin-Dri can save enough corn to pay for itself this spring when warmer weather and moisture start their damage. And that same equipment can be used for drying and aerating shelled corn and small grains for years to come.

Get the facts on Louden's low-cost natural air Bin-Dri. See your Louden Dealer or mail coupon for literature.

Est. 1867 The Louden MACHINERY COMPANY
323 S. Court, Fairfield, Iowa • Branch, Albany, N.Y.
Send me information on the Louden Bin-Dri.

Name_____
Box_____ Route No._____
City_____ State_____



TRADE-IN
that old PUMP on an efficient new
Jacuzzi
JET WATER SYSTEM

Right now your old pump regardless of make or condition is worth real money at your Jacuzzi dealers in trade on any new 1958 Jacuzzi jet water system. It's your big opportunity to get vastly improved, more economical water service at a substantial cash saving!

You'll get completely-automatic performance. The 1958 Jacuzzis are self-priming even on wells to 400 feet . . . adjust automatically to changing water levels . . . shut off automatically to save on power whenever your well water temporarily drops below pumping level.

You'll get that extra water and pressure required for the new automatic washers and all your other needs for modern farm living. The 1958 Jacuzzis now provide up to 20% more water and 35% more pressure. This means better water service . . . increased savings on monthly power bills. **Wide range of models for both deep and shallow wells to solve your particular water problem most economically.**

JACUZZI BROS. INC.

Jacuzzi Avenue, Richmond, California
4100 Bayless Avenue, St. Louis 23, Missouri
Upper Court Street, Binghamton, New York

Please rush name of nearest dealer and free literature on Jacuzzi jet water systems.

Name_____

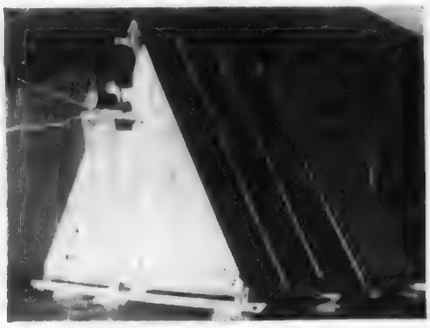
Address_____

Canadian factory: Box 514, Toronto, Ontario

in condition, sucking air down through. "Sucks the bugs right out of it," he says. "Bugs follow the heat. As the heat line works down, the bugs come with it—right out the fan."

Solar Heat and Gimmicks

Neither insects nor spoilage can work in the absence of heat and moisture. Cool, dry grain is proof against these hazards. Striving for ever more economical ways to condition grain, engineers at Kansas State College are experimenting with a solar-heat batch dryer. Their experimental model consists of a steep-roofed 125-bushel batch bin with one side slanted to the autumn sun. Air is drawn under a 40-square-foot area of black plastic, forced up through grain. They have achieved a maximum of 40 degrees F. temperature rise at noon in October on a bright day at 2 cfm/bu, but don't do so well in the morning, afternoon, or on cloudy days. But don't wait for the solar dryer to come



Experimental solar heat dryer.

on the market. Kansas experimenters are not yet ready to release recommendations.

The Britishers have also come up with a no-heat sacked-grain dryer. You simply push a perforated tube down into each sack of grain. The tube contains a moisture-absorbing chemical (presumably silica gel) which, as it soaks up moisture, turns from blue to pink. To recharge, you heat the gel in the Mrs.' oven at 212 degrees F. to drive off the moisture until the pink returns. This would be a little slow for most of us, though.

It makes good sense for a farmer to sit down with a paper and pencil when he considers going into grain drying. He should consider the amount of grain he has to handle, the rate that he has to handle it, the timing involved in its sale or use. Then the job is to fit the drying equipment to these three qualifications, picking the outfit that offers the maximum profit possibilities.

THE AUTHOR: Dana C. Jennings, a native Kansan, claims an agricultural background. "Having sprung from honest—and therefore poor—parents, my early agricultural career embraced the one-horse walking plow and the steam thresher rig," he writes. "I rode horseback to high school and always aspired to swimming my horse across the Walnut River and striding, dripping wet, into class—but the water never came above the stirrups." As a free-lance writer, he has done many a farm machinery story. He explains, "Having turned many a weary shovelful of grain, and having no great love for the taste of sweat, I am a staunch booster of grain dryers and other farm machinery that will spare muscle."

Greatest Advance in Grain Drying History!

The NEW HABCO 200
Recirculating GRAIN DRYER
230 bu. capacity

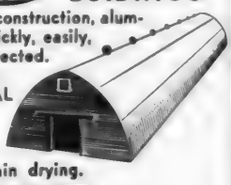
A COMPLETE UNIT
— No extras to buy

- FASTEST DRYING • POSITIVE FEED ROLLS
- LOWEST OPERATING COSTS
- COMPLETE RECIRCULATION
- SAFE, SIMPLE, EASY TO OPERATE
- 100% THERMOSTATICALLY CONTROLLED
- AUTOMATIC SHUT-OFF
- WIDE RANGE LP GAS BURNER
- OPERATES OFF PTO or ELECTRIC MOTOR
- COMPLETELY PORTABLE Just 12' 5" high, 8' 2" wide rigged for the road

All the Farm-Proved Advantages of the Habco 400— The Original Recirculating Dryer

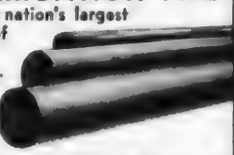
NEW HABCO FARM BUIDINGS

Segmental arch construction, aluminum siding. Quickly, easily, economically erected. A size for every purpose. SPECIAL DRI-STOR BUILDING— with built-in facilities for grain drying.



HABCO FLO-MOR Aluminum IRRIGATION PIPE

Produced by the nation's largest manufacturer of roll-formed aluminum tubing. Full range of diameters 3" through 12".



Send coupon today for FREE literature

HABCO MFG CO.

Dept. Q-12 Columbus, Nebraska

Please rush information on ☐ grain drying ☐ farm buildings ☐ irrigation pipe

Name _____

Address _____

City _____ State _____

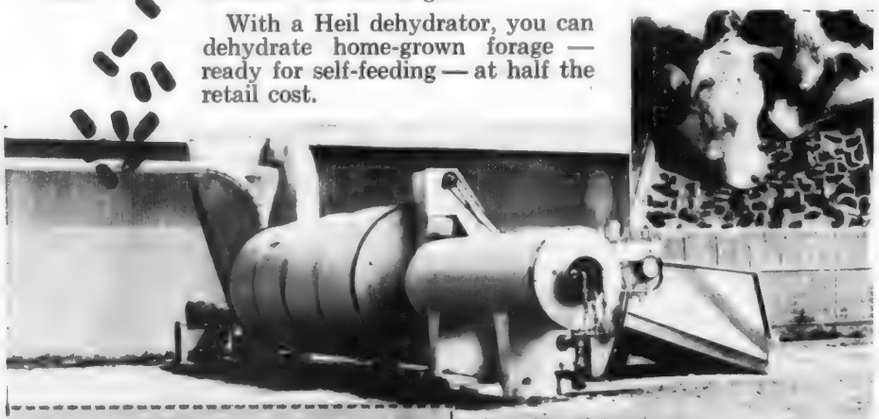
☐ Farmer ☐ Dealer ☐ Student

DEHYDRATED ALFALFA
hikes gain per steer by 26 pounds!

In 148-day tests at the University of Nebraska, steers gained an average of 26 lbs. more when dehydrated alfalfa pellets replaced 25% of the alfalfa hay in the fattening ration.

Average daily gain per steer increased from 2.15 to 2.33 pounds. By adding 82 pounds of alfalfa pellets, it took 35 lbs. less corn and 104 lbs. less alfalfa hay for each 100 lbs. of gain.

With a Heil dehydrator, you can dehydrate home-grown forage — ready for self-feeding — at half the retail cost.



The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis.
Please send me more information:
☐ For farms with 100-500 acres of forage crops.
☐ For farms with 500-1,000 acres of forage crops.
☐ For farms with 1,000 or more acres of forage crops.
Name .....
RFD or street .....
City ..... State .....

THE HEIL CO.
(Manufacturers of the Arnold Dryer)
3000 W. Montana St., Milwaukee 1, Wis.

New Gehl Blower

This new Gehl 2-speed PTO Blower beats all others Direct drive PTO at 540 RPM and optional step-up drive at 760 RPM. Two trough sizes: 10-foot for any side or rear-unloading box, and 3-foot trough for side-unloading. Nine inch pipe adjusts to many angles. Enclosed trough prevents spillage. Moves anywhere on permanent transport. This is the blower to see before getting any other...see a Gehl dealer.

Send coupon now — get the full story

GEHL BROS. MFG. CO., Dept. BC-5911, West Bend, Wis.
Send complete new Blower information and Gehl line catalog ☐
I'd like to see the new Gehl color movie on "Modern Forage Handling" ☐
Check if for school use ☐
Name _____ Acres Farmed _____
Address _____ State _____

GEHL *you can't beat Gehl's lower price*

MAKE UP TO $25 DAY
sharpening Sickle Bars spare time

Many others make even more. It's easy with a portable Lantz "Swinging" Sickle Grinder. Just plug it in and the swinging grinding arm grinds both coming and going. Every farmer that mows is a prospect . . . needs your service . . . will pay you good money. FREE PLAN gets you started in spare time. Write TODAY!

LANTZ Manufacturing Co., Inc.
VALPARAISO Dept. 101-J INDIANA

Let BEES Make Money and Honey for You!

BEES . . . a good profitable sideline or fascinating, interesting hobby. Easy — requires little time, and you can produce all the delicious honey your family can use. U.S.D.A. recognizes bees as the most important pollinating agent for 60 farm crops.

Send $1.00 for book, "First Lessons in Beekeeping" and 6 months subscription to leading bee magazine. Free literature.

AMERICAN BEE JOURNAL, Box Q, Hamilton, Illinois

FEEDING FOR EARLY BREEDING

(*Continued from page* 45)

that these calves will be kept nursing on the cow as long as possible," Hunnicutt said. "We therefore recommend that they be creep fed the pelleted rumen bacteria feed and mixed grain early in their lives—a few weeks after birth. We have found that a quarter pound of the pellets and as much grain as they will clean up converts them into ruminants quickly. You can see it happen. The animals that are fed the pellets will be browsing on hay and grass far earlier than those that don't get the pellets. We go right on feeding the pellets after weaning and have found that we can increase the amount of roughage the growing animal will consume about a third."

With production of the new materials in full swing, Consolidated Products Company has been able to lower the price on these feeds—an event which is certainly as newsworthy in these days of spiraling prices as any man biting a dog. A 25-pound box of the milk replacer with the rumen bacteria feed additive now costs in the neighborhood of $4—and a 25-pound box, the company claims, is enough to raise a calf to weaning along with the ground grain and hay. The pellets have dropped over 30 per cent. Fed at the rate of a quarter of a pound, they can be fed for less than three cents a day or less than $11 a year per animal.

The first feeding cycle using these methods has now been completed. The dairy heifers which were sold to Carl Pooler and Carl Dagger calved last fall. These 18 Holstein heifers, which had been fed the rumen bacteria feed from four days old, were bred when they were 13 to 14 months of age. Some were artificially inseminated to a Holstein bull and some field bred to an Angus bull. All of them were of normal breeding size. They calved normally and went into milk production at 22 to 23 months of age. At the same time these heifers were bred, another group, 10 to 12 months older, were also bred. The younger animals are giving less milk at the present time; the highest producer among the older control group is a 32-month-old heifer that gives 58 pounds a day while the highest producer of the younger group is a 21-month-old heifer that gives 38 pounds a day, both at the end of five weeks milking.

These are the first results. Whether they will be typical of the findings of other dairymen who follow this feeding system, only time will tell. As yet this product has not been tested by any of the agricultural colleges or experiment stations so there is little comparative information available. There are, naturally, a great many questions that are tantalizing, but which can only be answered by experience.

Pooler and other dairymen want to know whether these big heifers will con-

tinue to grow and be bigger cows than the older animals they are being compared with. "We naturally also wonder whether they will catch up with the others in milk production during this or their next lactation," Pooler said.

Some observers have pointed out that early sexual maturity is often associated with persistence of this function and that milk secretion is a sexual function. With this in mind they wonder whether these heifers will have a longer productive life or whether early breeding will retard their later growth and burn them out.

Those who take a longer view are questioning whether the heifer calves born to these younger animals will be as vigorous and as productive as calves born to older heifers.

"A couple or three questions I would like answered," one dairyman said, "are: Is growth always directly related to sexual maturity? Is this the only feeding system that will bring about rapid growth? And will conception rates be as high with these younger heifers as they are with older animals which have reached their growth more slowly? And will there be any greater udder trouble with these fast-growing heifers than you would expect with any milking animals?"

Walter Hunnicutt and his associates, who have watched the early stages of this new feeding system with great personal interest, believe that total production of the cow will be increased by the fast start; that the non-productive early life will be cut by a fifth; and feed efficiency stepped up markedly. But even they are going to have to wait for time and experience to bring us the answers.

New Model 60G **M-C Chopper and Hay Conditioner**

The One Machine that Does ALL these Jobs:

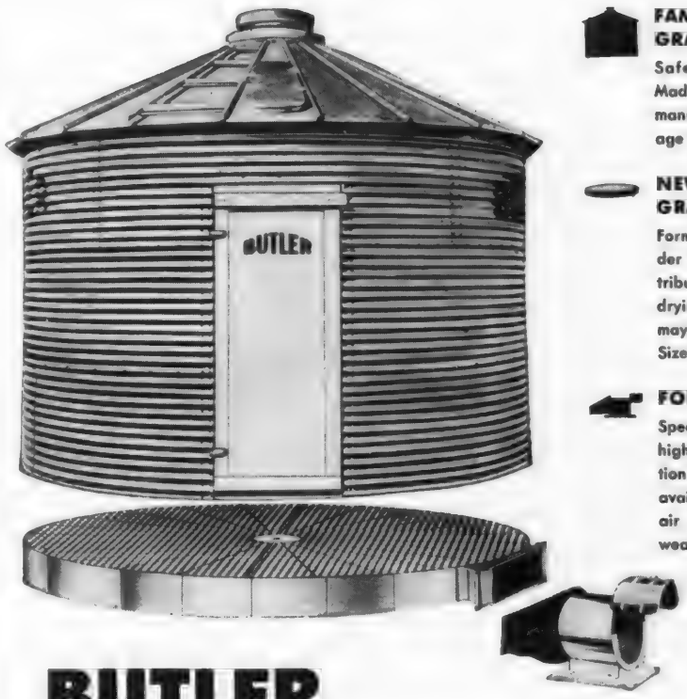
• HAY CHOPPER • STALK SHREDDER
• HAY CONDITIONER • MOWER

THIS MACHINE CHOPS AND LOADS! Chops green feed, silage, dry hay, and stalks for bedding. The new 60-G handles the heaviest or the lightest crop . . . with less power!

THIS MACHINE HAY CONDITIONS! The New 60-G Chopper *and* Hay Conditioner follows right behind mower. It crimps and aerates for quick field drying!

SEE M-C... FOR BETTER FARM EQUIPMENT

MATHEWS COMPANY
Crystal Lake, Illinois



FAMOUS BUTLER GRAIN BINS
Safest grain storage yet! Made by America's leading manufacturer of grain storage structures.

NEW PERFORATED GRAIN BIN FLOOR
Forms plenum chamber under bin, assures proper distribution of air for uniform drying throughout bin. Ducts may be substituted for floor. Sizes for every drying need.

FORCE-AIRE FAN
Special high volume unit for high-static pressure operation. Supplemental heater available to pre-condition air during humid or cold weather.

BUTLER
Store-'N-Dry System

. . . a complete "package" for on-the-farm storage of high moisture grain

Here's a complete system of grain drying in storage that lets you take advantage of early harvesting methods, safely handle hard-to-store crops such as sorghums and economically dry grain harvested in wet years. The Store-'N-Dry System requires no extra labor to operate—and its dependability has been proven by more than five years of field use.

There's a specific Store-'N-Dry "package" for almost every kind of grain, for almost all moisture conditions. Individual parts of the "package"—the bin, the special perforated drying floor or duct system and Force-Aire fan—have all been pre-selected and matched to the drying job.

There are no restrictions on filling height in the bin. The Store-'N-Dry System prevents damage to the grain from drying too fast—or too slow.

You get the "package" that fits your need by specifying the storage capacity you need and your normal harvesting practices. For the important details, mail coupon today.

SAVES GRAIN
Prevents heating, moisture migration and crusting. Reduces chances of infestation.

SAVES WORK
Just one grain handling operation—into the bin—and you're ready to both dry and store your crop. Eliminates extra handling and trucking.

SAVES MONEY
Costs only pennies a day to operate the high efficiency Force-Aire fan. The Store-'N-Dry System eliminates commercial drying charges.

For prompt reply, address the office nearest you

BUTLER MANUFACTURING COMPANY

Dept. 378, P. O. Box 7027, 1020 East 63rd St., Kansas City 13, Mo.
978A Sixth Avenue, S.E., Minneapolis 14, Minnesota
Dept. 78A, South 27th Street and Butler Ave., Richmond 1, Calif.
921 Avenue W, Ensley, Birmingham 8, Alabama

Please send details of New Store-'N-Dry System for high moisture grain to:

Name .....

RFD or Street .....

Town ..... State .....

BUTLER STEEL PRODUCTS

BUTLER MANUFACTURING COMPANY
Manufacturers of Farm Equipment
Buildings • Oil Equipment
Dry Cleaners Equipment
Outdoor Advertising Equipment
Custom Fabrication

Factories at Kansas City, Mo.
Minneapolis, Minn. • Galesburg, Ill.
Richmond, Calif. • Birmingham, Ala.
Houston, Texas • Burlington, Ont., Can.

Durethene

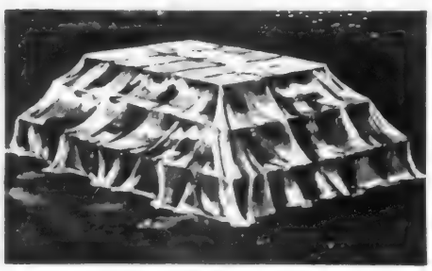
POLYETHYLENE

FILM TIPS

Here is a low-cost, non-rotting, water impervious plastic film just right for literally hundreds of farm uses. Durethene® polyethylene film can help you farm better; it can help you farm for less cost and it can help you out in dozens of other practical and profitable ways. In fact—once you use versatile Durethene film, you'll see new applications for it everywhere you turn.

Upright Silo Cap

An efficient, easy to use, sturdy cover to cap silage stored in upright silos can be made from black 4 mil Durethene film. The cover is made to the diameter of the silo plus approximately twelve inches all around. Individual widths can be joined by stitching or sealing. The outer edge should be triple hemmed for added reinforcement. For extra weight, a length of galvanized chain may be hemmed around the cap edge.



Hay Stack Covers

Here's an application for Durethene film that can prevent loss of freshly cut hay. Tarpaulins made from waterproof Durethene film are excellent covers for hay stacks. The film keeps out rain and it can be used for both temporary and permanent storage. The film is extremely durable, yet it is so lightweight that two men can cover large stacks with little difficulty. Covers are reusable and will last for many seasons.

Want more Durethene FILM TIPS?

This Durethene polyethylene film handbook shows how to save time, money, and work on the farm and in the home. Over 50 idea-provoking uses. Send for your free copy.

D-11

Koppers Company, Inc., Durethene Department
1450B Koppers Building, Pittsburgh 19, Pa.

KOPPERS

Durethene
POLYETHYLENE
FILM

RECIPE FOR GOOD GRASS SILAGE

(*Continued from page* 78)

sulting roughage is not much changed in condition, appearance, or feeding value from its original state.

Among farmers and research men alike, the major silage controversy concerns wilting versus additives. The purpose of wilting is to reduce moisture; some additives also reduce moisture, others offset its effects. Whether to wilt or to use an additive is a decision the farmer must make. There is no need to use both methods.

The forage is mowed like hay and allowed to wilt in the swath or windrow. When testing equipment or the "grab-test" indicates the moisture is reduced to between 60 and 70 per cent, the forage is picked up by a forage chopper and blown into a truck or trailer. In using the "grab-test" the chopped material is tightly compressed into a ball between the hands. The pressure is suddenly released. If there is juice on the hands and the ball holds its shape, the material contains over 75 per cent moisture. If the ball holds its shape but there is no free juice, the moisture content is between 70 and 75 per cent. The moisture content is estimated at between 60 and 70 per cent if the ball comes apart slowly; and if it springs apart the moisture is below 60 per cent.

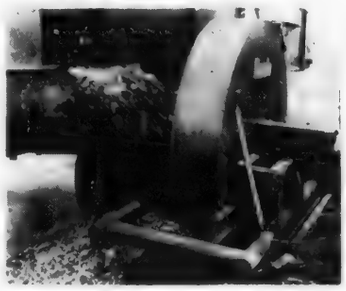
Most operators use a mower equipped with a windrowing attachment. Over half of all farmers use the wilting system on at least part of their grass silage. It is the first choice of the majority of dairymen in Michigan, Wisconsin, and New York.

Advantages: Wilting eliminates the need for a cutter head on the harvester. It brings crop moisture under fairly accurate control. Wilting time can vary across a field. "There's no reason why forage has to be picked up in the order it was cut," says Fred Matthis, a Batavia, Ohio, dairyman who uses tower silos. "As I pick up the windrows with the chopper, I notice which are too dry and in order to balance the moisture content for the whole load I pick up some higher in moisture. Areas in a field may vary in legume stands or in length of time wilted and so bring about this difference in moisture. I am careful to keep my moisture content to the proper percentage by the grab test. I've never had any luck with a direct cut. If you can cut direct the forage is past its maximum protein content."

Disadvantages: Wilting requires one or two extra operations in the field. The crop must be raked or windrowed after wilting. This causes a loss of leaves and some leaching always occurs. Use of mower-windrower equipment can save one operation but wilting in the windrow is not always satisfactory. To pack well, wilted forage must be chopped finer, which takes more power. In large fields of heavy legumes, considerable drying and shattering may result before all the windrows can be picked up. In very unsettled weather, sufficient wilting may never take place.

NOW

a Forage Blower for less than $400.00 F.O.B. LESS PIPE



THE KOOLS K-30 HOPPER BLOWER

Another Kools FIRST . . . A compact, streamlined Forage Blower for use with side unloading wagons and portable drag elevators. Complete with—

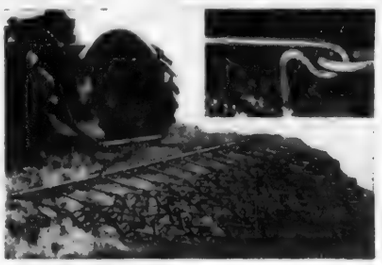
- Hopper Auger—to prevent bridging.
- Big Jacobsen "Flywheel" Fan.
- Shred Knives to eliminate wedging. (for wilted hay and mow drying)

These, plus all of the high capacity features of the regular Kools K-20 Feeder Type Blower.

Ask your Kools Dealer for a demonstration, or write . . .

KOOLS BROTHERS, INC.
APPLETON, WISCONSIN

LOW COST HARROW HELPS PASTURES GROW



$99.50 F.O.B.

Ideal for spreading Livestock droppings

Scarifies gently for best aeration provides continuous renovation

The handy FUERST F-L-E-X-I-B-L-E Tine Harrow® is one of the most useful farm tools ever developed. Excellent for preparing ground for fertilizer—top dressing behind spreader. Just the tool to use when making the first pass on corn or similar crops. Can even be used to prepare seed beds behind disk or spring tooth harrows. The FUERST F-L-E-X-I-B-L-E® is adjustable to all working conditions from light soils to the very toughest. Requires no maintenance. Send the coupon today for FREE literature.

Some territories open for user-dealerships.

Fuerst Brothers (New York) Inc.
Farm Equipment Div., Dept. 2-C
Rhinebeck, New York

Please send me complete information about the FUERST F-L-E-X-I-B-L-E Tine Harrow.®

Name .....
RR .....
Town & State .....
My favorite dealer is .....

Alvin Buck of Lafayette, Indiana, who built a 300-ton trench silo for grass last year, says: "I turned from hay to silage to beat the weather. By wilting a crop and letting it lay exposed to the weather, I'd be right back where I started."

In this method, standing forage is cut with a field chopper with a cutter head. The material is delivered to a vehicle for immediate unloading at the silo. The additive is applied to the load in

Making grass silage by the direct cut method requires a center head on the harvester, but weather risks are lessened and no nutrients are lost through leaching in the windrow.

the vehicle or during the unloading process or is distributed in the silo as loads are spread. Government surveys for 1955, the latest available, show that about one-third of our total grass silage was made with additives. Half the farmers who used them preferred bisulphite, one fourth used molasses, one eight used feed grains, while the remainder chose minor preservatives such as sulphur dioxide.

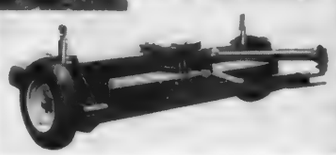
Additives are of two kinds, conditioners and artificial. The first, of which molasses and corn meal are the most common, add

CUT YOUR CURING TIME IN HALF WITH THE "LOOK AHEAD" 1958

BRADY HAY CONDITIONER

HEAVY DUTY BIG 80" CAPACITY FOR 6' OR 7' MOWERS

CONDITIONS HAY BY "CRIMPING" NOT CRUSHING!



Rich, natural protein laden juices are sealed-in with a BRADY HAY CONDITIONER to give cattle summer-fresh feed all winter. No loss of valuable vitamins and carotene laden leaves. Bleaching is reduced to a minimum. Crimping action allows moisture to escape from stems at the same rate as from leaves. There's little field leaf loss. Curing time is cut in half. Cattle thrive on this leafier, more palatable hay that's as field green in winter as the day it's cut.

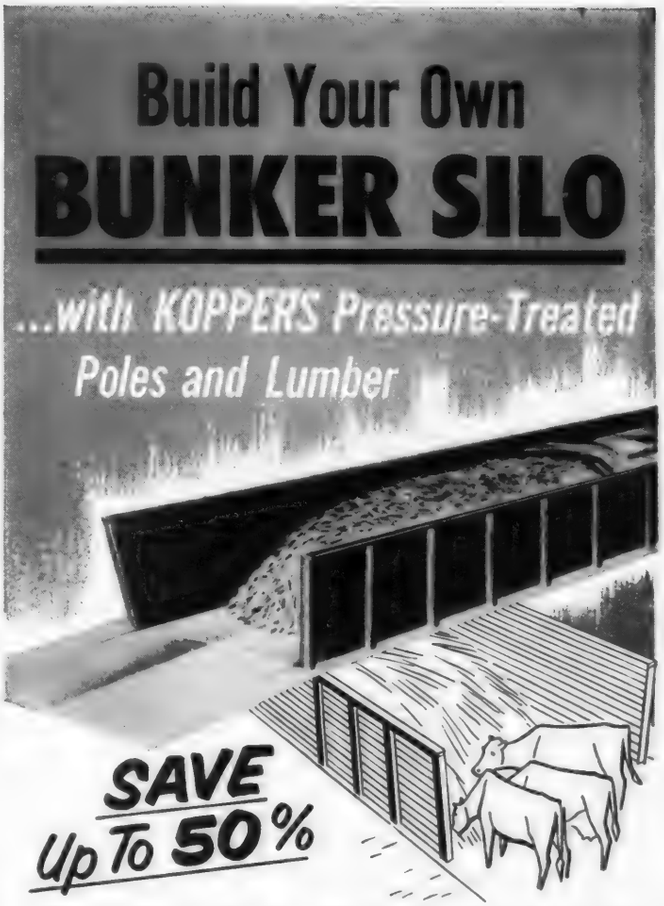
ASK FOR FREE FIELD DEMONSTRATION AND LITERATURE

BRADY MANUFACTURING CORP.

BOX 1456 DES MOINES, IOWA

Build Your Own BUNKER SILO

...with KOPPERS Pressure-Treated Poles and Lumber



SAVE Up To 50%

Pole-type bunker silos—like all pole-type farm structures using Koppers pressure-treated poles, posts and lumber—are economical to erect . . . go up fast . . . and can be built without expensive skilled labor. Most important, bunker silos are easier to load . . . have less spoilage . . . and make possible self-feeding arrangements.

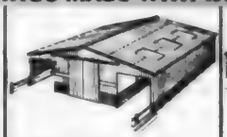
Pole-type bunker silos are better, too! Maintenance costs are practically eliminated. They give long years of trouble-free service, because Koppers pressure treatment gives complete protection against decay and termites.

Adding it all up—a Koppers pole-type bunker silo is easy to build; costs less to build; lasts longer; and saves you time and money year after year.

TYPICAL BUILDINGS MADE WITH KOPPERS PLANS

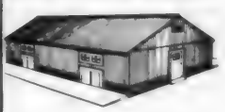
MACHINERY SHED

A low cost 26 ft. x 76 ft. building with 11, 13 or 17 bays. 1,976 sq. ft. of ground level storage area.



BEEF CATTLE BARN

52 ft. x 56 ft. with 26 ft. central clear-space area for easy unloading and storing of hay and feed.



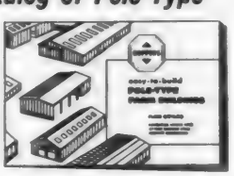
HOG HOUSE

A 24 ft. x 32 ft. building with central work alley. Movable partitions, doors and windows on all sides.

DOUBLE CORN CRIB

Double corn crib with roofed drive through, provides shelter for loading and unloading.

• Send for Catalog of Pole-Type Building Plans



It outlines the advantages of pole-type construction and details with pictures and drawings the easy-to-build plans available.

Wood Preserving Division, Koppers Company, Inc.

765 Koppers Building, Pittsburgh 19, Pa.

F-16

KOPPERS

POLES · LUMBER · POSTS

Why Buy Special Coulters?

NEW TIL-KUT BLADES

SELF-SHARPENING ACTION. Magnified section shows how blade looks after use. Serrogated edge sharpens itself, cuts trash faster.

The new Lantz Til-Kut blade is now available with center holes to fit all major line plows—IHC, JD, AC, M-H, Case, M-M, Ford, Ferguson, Oliver, Cockshutt, as well as all Lantz Coulters. It cuts heavy stalks and trash with a chewing motion. Til-Kut edge grips from all angles—prevents slippage and plugged plow. You'll get cleaner plowing and better corn borer control. Blades sharpen themselves. Last longer, too, but cost no more than ordinary blades. Write today—use coupon below.

LANTZ MANUFACTURING COMPANY, INC.
Grapple Hay Forks • Swinging Sickle Grinders
Cultivator Row Sweeps • Plow Coulters

LANTZ MFG. CO., INC.
DEPT. 101-I
VALPARAISO, INDIANA
Please send me more information on new Til-Kut Blades.
Name ..... RR No. .....
Town and State .....
My favorite farm implement dealer is .....
.....

sugars that quickly ferment to favor lactic acid baterial growth. Older types of chemical additives have largely been replaced by sodium meta-bisulphite (also called simply bisulphite) and calcium formate sodium nitrite. Bisulphite acts in two ways. It tends to inhibit undesirable bacteria. Some authorities also claim that it lowers the acidity to a stage favorable to the formation of lactic acid. It costs about 8 cents per pound and is usually applied at the rate of 8 pounds per ton. Since it does not absorb moisture like conditioner-type additives, use of bisulphite on high-moisture forage going into a very tall upright silo is seldom recommended. Seepage losses, from the high pressures developed, are too great. The choice of additives should be based on cost and ease of application.

The calcium formate mixture, through its chemical action, drives out trapped air to stop harmful fermentation. Then it helps to create the necessary degree of acidity to assure natural fermentation as is liberates formic acid. Use about five pounds of this mixture per ton of silage.

Advantages: Weather risks are lessened. Very early cutting of wet forage is possible. Nutrients are not lost through leaching in the windrow; leaves are not lost through shattering. Conditioner type additives like corn meal not only aid drying and the formation of lactic acid, but they also provide nutrients, since only 10 to 20 per cent of such conditioners are utilized

an air compressor is a basic farm tool

Above is illustrated one of the many jobs that is performed by the *Campbell-Hausfeld Tankmobile Air Compressor* on the farm of William Brown, Rt. 1, Amelia, Ohio . . . cleaning the grain seeder. With proper accessories this portable *Tankmobile* can do a variety of jobs for you:

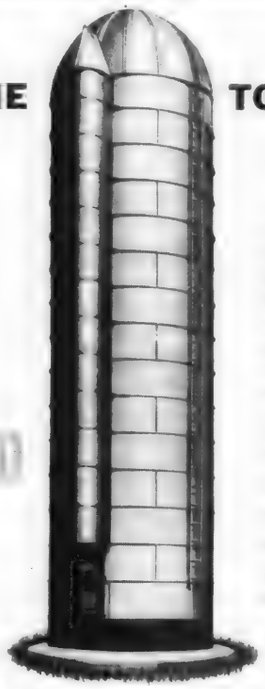
- Pressure-grease your machinery
- Spray-paint buildings and equipment
- Inflate vehicle tires for best performance
- Fog barn to eliminate insects
- Do many other time-and work-saving jobs

Ask your dealer to bring out a dependable *Model 15W Tankmobile Air Compressor* and show you how it will save labor and money. Write for descriptive circular. THE CAMPBELL-HAUSFELD CO., 181 Railroad Avenue, Box 1, Harrison, Ohio.

CAMPBELL-HAUSFELD

NOW IS THE TIME TO PLAN FOR PROFITS

. . . with high-efficiency C & L farm buildings



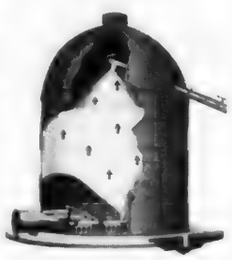
C&L CLAYTON & LAMBERT

ALL-STEEL SILVER SHIELD SILOS

Here's the silo proved *best* for profitable grass silage. Get better quality silage—increased production from your beef and dairy cattle. Cut labor cost in both handling and feeding. Efficient, convenient upright Silver Shield Silos give all-year green pasture feed. Get ready now for your first grass cutting—store your harvest *safely.*

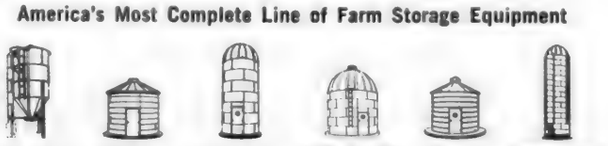
Grain Conditioning and Storage Systems. These modern storage bins also add increased value to your farm, help build profits. Exclusive C & L perforated floor design and blowers let you dry grain in high humidity conditions. Ask for copy of "Grain Marketing Digest" for valuable facts on money-making grain storage.

EXTRA SAVINGS if you order now. Take advantage of early order discounts by telling us your farm building requirements now



Clayton & Lambert MANUFACTURING COMPANY

America's Most Complete Line of Farm Storage Equipment



Silver Shield Bulk Feed Storage Bins | Buckeye Grain Bins | Silver Shield Silo-Type Cribs | Silver Shield Silo-Type Grain Bins | Buckeye Corn Cribs | Silver Shield Silos

MAIL THIS COUPON TODAY!

CLAYTON & LAMBERT MANUFACTURING COMPANY
1723 Dixie Highway, Louisville, Kentucky

Yes, send me full information, without obligation, on how C & L storage units (checked below) can help me earn more money from my farm.

☐ Silver Shield Silo ☐ Silver Shield Silo-Type Crib
☐ Silver Shield Grain Bin ☐ Buckeye Bin ☐ Buckeye Crib

NAME _____

BOX NO. _____ ROUTE _____

POST OFFICE _____

by the bacteria. The other 80 to 90 per cent remain to fortify and increase the palatability of the ensilage. Bisulfite preserves carotene, which makes the yellow creamline on milk.

Disadvantages: Cutter heads on harvesters for direct cuts cost money and can be troublemakers. Antiseptic additives like bisulphite slow up silage processing. It sometimes takes two months for the fermentation to be complete. Chemicals are hard to distribute and cause uneven fermentation; they also run up silage costs about $1 per ton. Molasses is messy and powdered molasses is more expensive.

In the opinion of Dr. W. K. Kennedy of Cornell, additives often do not justify their cost. Tests under his direction indicate that additives are seldom needed if air is rapidly excluded from the crop by rapid silo filling and compaction. Research at the University of Wisconsin showed that direct cutting of high moisture meadow crops resulted in high losses regardless of the use of additives. Spoilage and run-off, with sacrifice of protein, vitamins, and minerals were great in the Wisconsin tests. Chemical additives produce no increase in feeding values.

Cautious Farmer

John Davis runs a 56-cow dairy farm near Olivet, Michigan. For years he has put up top-quality corn silage. Since 1956 it has been stored in a 20 by 60-foot tower

LOW-COST SILAGE PROTECTION

C-line TRENCH & BUNKER SILO COVERS

- *C-Line polyethylene silo covers help prevent spoilage by sealing out harmful moisture, light, air and dirt.*
- *Made of Ger-pak virgin polyethylene. Light-weight . . . easily handled by one man.*
- *Jet black . . . keeps out harmful ultra-violet rays. Won't crack in cold weather.*

for fast service on your order, call collect GL 5-5346

mail this coupon

to:

CANTON CONTAINER INC.

1101 9th St. S.E.
Canton 7, Ohio

PLEASE SEND ME FULL INFORMATION ON C-LINE TRENCH OR BUNKER SILO COVERS.

My silo is_____wide, _____long, _____deep.

My name _____

Address _____

City_____ State_____

Also send information on C-line_____silo caps_____tarpaulins_____machinery covers_____mulch.

When you go BULK . . . go to the BEST . . .

CRAFT coolers invite comparison from construction to cooling . . .

Upgrade your milk quality . . . increase your profit . . . make your job easier—with these CRAFT features:

☐ **FASTEST COOLING . . . AT LOWEST COST** . . . Lowest blend temperatures made possible by exclusive design milk tank and patented "Jet-Flow" of ice water—entire surface continuously refrigerated.

☐ **BUILT TO LAST FOR GENERATIONS** . . . Heaviest of all frame of 3 inch "Ship and Car Channel" . . . legs that will hold up 20,000 pounds . . . 18-8 stainless steel throughout.

☐ **EASIEST OF ALL TO CLEAN . . . TO FILL** . . . Large cover openings and 3" radius, or 6" diameter, corners permit thorough cleaning of milk tank in record time . . . fast cooling minimizes bacteria development. Low height for easy, effortless pouring.

☐ **EXCLUSIVE 10 YEAR DIRECT FACTORY GUARANTEE** . . . Nothing to rust or deteriorate. Minimum maintenance throughout the years.

☐ **ABSOLUTE MAINTENANCE OF CALIBRATION** . . . Insures payment for all milk produced. Rugged frame can't sag under load. Milk tank can't flex or bulge. Permanent, accurate milk measurement.

☐ **EASE OF SERVICING** . . . All controls readily accessible through inspection cover.

☐ **EMERGENCY COOLING** . . . In case of power failure, ice bank keeps milk cool for 24 hours. If longer protection necessary, water tank can be filled with chipped ice.

☐ **WILL NOT FREEZE MILK** . . . Circulating 33 degree ice water cools quickly but cannot freeze—thus protecting milk quality.

New illustrated booklet gives valuable tips on remodeling your present milk house for bulk milk cooling.

Craft MANUFACTURING COMPANY
2308 North Davis Street North Chicago, Illinois

CRAFT MANUFACTURING COMPANY
2308 North Davis Street • North Chicago, Illinois

☐ Send me your FREE booklet, "Tips on Remodeling your Milk House for Bulk Milk Cooling", also information on Craft Coolers.

Name.....

Address (or R.R.).....

Town.....State.....

Costs LEAST to Buy - LEAST to Run

Handles Forage Crops FASTER, CHEAPER

The 1958 PAPEC "32A" FORAGE HARVESTER

4 QUICK-HITCH ATTACHMENTS

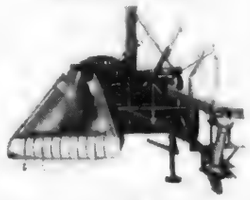
Let the Papec "32A" Forage Harvester cut your forage handling cost and increase your profit. It is the lowest cost forage harvester, yet does the job better, faster, with less help.

In field trials, a stock "32A" repeatedly handled the heaviest, toughest crops with record speed. The Papec "32A" has fewer moving parts, is easier running. New TWO V-BELT MAIN DRIVE insures transmission of full power from PTO to harvester.

IMPORTANT PAPEC FEATURES

Two V-Belt Main Drive . . . Automatic Delivery Pipe Control . . . Side and Rear Feed Delivery . . . Manual and Hydraulic Lift on Base Unit . . . High Speed Cutting Wheel . . . Adjustable Axles . . . Adjustable Hay Pick-up Fingers . . . Patented Silage Shelf . . . Wheel Hold-down and Push-bar standard on Direct Cut Attachment.

DIRECT CUT



HAY PICK-UP

1- and 2-ROW CROP ATTACHMENTS

Changeover from one attachment to another is easy and can be done in minutes.

ALL NEW PAPEC MODEL 40 CROP BLOWER

PTO or BELT DRIVE

Easily keeps ahead of forage harvester. Hopper or Apron Table . . . Fingertip Table Lift . . . Retractable Transport Wheels . . . PTO or Belt Drive . . . Cut Steel, Heat-Treated Gears . . . TIMKEN BEARINGS.

See the 1958 "32A" Forage Harvester and the All-New Model 40 Crop Blower at your Papec dealer or send name on margin of ad for FREE booklet. Papec Machine Company, Shortsville, N. Y.; 243 W. Merrill St., Indianapolis, Ind.; 2925 Chrysler Road, Kansas City, Kan.; 18 N. Tyler Ave., Hopkins, Minn.

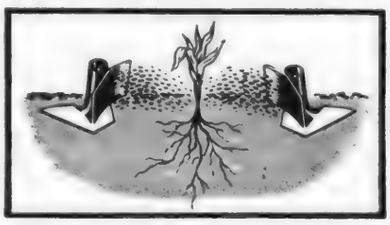
PAPEC FORAGE HARVESTERS · CROP BLOWERS · HAMMER MILLS · HAY CHOPPER-SILO FILLERS · ENSILAGE CUTTERS · FEED MIXERS

silo, newly constructed that year. Late that fall, a second silo of the same size, intended for grass silage, was added, although Davis had never attempted to ensile grass. Nearby farmers were skeptical. They insisted that making good grass silage was impossible for a beginner and tough even for an expert.

Davis doesn't scare easily. The silo was there and the grass was coming and he felt a certain itch. He's the kind of farmer who reads the labels on the paint cans and likes to get authoritative opinion before making unfamiliar moves. Last spring he turned to Prof. C. R. Hoglund and Dr. S. T. Dexter of Michigan State University for a workable grass silage recipe. They left the choice of wilting and additive methods up to him.

"Straddling the issue looked best to me," says Davis. "I decided to wilt the grass but to keep a conditioner handy just in case. My hope was to fill the silo in a few days but because of bad weather it took from June 18 to June 25 to cut the 500 tons the silo holds. We cut 51 acres of a first crop alfalfa-brome mix. The older stands with the most grass were cut first. That went on the bottom of the silo, so it was wilted the most, with less and less wilting as the silo was filled. About half way through, we had a very damp morning. The crop wouldn't wilt. It stayed at about 80 per cent. So we tried the corn and cob meal recommended by the university. We mixed 5 tons of half corn and cob meal and half extra cobs with about 40 tons of silage. The moisture came down to 72 per cent by test.

NEW LANTZ SWEEPS COVER WEEDS IN THE ROW



Eliminate root pruning and throw dirt where you want it

Ideal for both first and last cultivation. Patented sweep deflector on Lantz Row Sweeps throws dirt farther in a more uniform flow—even covers weeds and grass between hills in the rows. Faster cultivating speeds are possible because sweeps can be set farther from row—preventing root pruning. Fit all leading tractor cultivators. Adjust dirt control with simple twist of shank. Proven effective shallow cultivation for corn, soybeans and other row crops. Extra yield from one acre will more than pay for your Lantz Row Sweeps.

Send coupon for special field report folder.

LANTZ MANUFACTURING COMPANY, Inc.
Dept. 101-F
Valparaiso, Indiana

Please send me special field report folder and other illustrated literature on the sensational new Lantz Row Sweeps.

Name .....

Town and State .....

My Favorite Farm Implement Dealer is .....

.....

"The Original Flail-Type Harvester"

LUNDELL OFFSET CHOPPER

performs 4 Big Farm Jobs for the price of a machine that does just one!

Cut Your Operating Costs and Save Time with This Low-Cost MULTI-OPERATION Machine

Just one machine — the Lundell Offset Chopper and attachments will do four heavy, important jobs on your farm. You have only *one* cost instead of four. With the Lundell, you can chop grass or row crops for silage or green feeding. You can shred stalks to help improve soil fertility and condition. You can shred a more highly absorbent bedding for livestock. And *in one operation* you can mow, crush and windrow hay — all ready to be picked up. There isn't another machine on the farm today that does so much. That's why more farmers are buying the Lundell Offset Chopper!

Lundell "Flailed-Shred" — The exclusive cutting action of the Lundell Chopper actually lacerates and shreds material. Leaves no sharp edges, packs better in the silo, eliminates chances for air spaces. Shredded bedding has more absorption power. Chopped stalks decompose faster in the field. **Lundell is the original, patented flail-type harvester.**

Here's how the Lundell can do 4 Big Jobs so economically—

1. As a CHOPPER—Use it for green feeding or to chop grass silage, row crop silage or stalks in the field—or to put up stalks for bedding.

2. NEW Addition to Lundell's Multi-Operation System! Low-Cost, Time-Saving WINDROWER ATTACHMENT—Now you can mow, crush and windrow in one pass. Adjustable spout lets you put three rounds into one windrow. With the Windrower and Lundell's exclusive lacerating cut, the machine becomes a hay conditioner. You save time, gasoline and wear on baling equipment or loaders.

3. As a CHOPPER for ROW CROPS—With the addition of the economical Corn Head Attachment you can put up corn, soy beans, sorghum or any row crop for silage.

4. As a SHREDDER — Just remove spout and you can use machine for mulching or mowing pastures. Shreds stalks and crop residue for faster decomposition. Improves soil condition.

Write today for complete information about the Lundell Offset Chopper. Or see your nearby Lundell Dealer.

Manufacturers of these Quality Farm Products — Lundell Deluxe Chopper, Auger Bunk Feeder, Forage King Blower, Wagon & Truck Hoists.

Lundell Manufacturing Company, Dept. F-3 **Cherokee, Iowa**

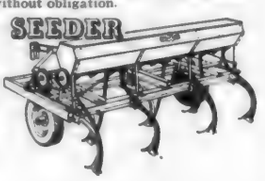
Secure Your Stake In Soil and Water CONSERVATION

Stops Soil Blowing...Prevents Water Erosion—

Eight Sizes: 4 to 18 ft.

Whether you plan to qualify for conservation payments or make the most profitable use of your soil and water, it will pay you to find out how thousands of other farm operators have solved their soil problems. The DIAMOND PACKER is designed to tow lightly behind all tillage tools. There is a model to fit your soil and operational needs. Get the facts without obligation.

DIAMOND SEEDER



Plant as you perform last tillage to save moisture and get better stands ... higher yields. Big capacity seed box; accurately metered seeding. Models to fit most chisel plows and tool bars.

Wheat Belt **GRAIN DRYER & AERATOR**

Blows tons of air thru your bin every hour. Keeps grain in safe condition. Make more money storing and drying your own grain.

Does the work of testers costing twice as much. Not a gadget, but a scientific instrument that makes on the farm tests inexpensive and ACCURATE.

Wheat Belt MOISTURE TESTER

SUNFLOWER MFG. CO.
BELOIT, KANSAS

This **2-way action** keeps teat OPEN ...speeds HEALING

Dr. Naylor Dilators promote natural milking and normal healing because they ACT TWO WAYS:

1. ACT MECHANICALLY — keeps end of teat open to maintain free milk flow. Stays in large or small teats.

2. ACT MEDICALLY—Sulfathiazole *in* the Dilator is released *in* the teat for prolonged antiseptic action—directly at site of trouble.

At drug and farm stores or write:
H. W. NAYLOR CO.
Morris 7, N.Y.
Large pkg. (45) $1.00
Trial pkg. (18) 50¢

Dr. Naylor's MEDICATED Teat Dilators

"I was leery about top spoilage. Besides, our pasture was on the short side, though we weren't hurting. I decided to start feeding the silage out the day after we got it filled."

No seepage ever occurred. Samples taken at various levels as the silage was fed were of uniformly high quality. The layers of silage stabilized in moisture content at very near the percentage at which they went into the silo. The sample taken August 26, 1957, as given below, represents the layer of direct chopped forage to which corn and cob meal was added.

Date Sample Taken	Per cent Moisture	Protein Dry Wgt. Basis	pH
July 2	74.2	17.3	4.8
August 9	74.0	19.7	4.4
August 26	72.1	15.2	4.3
September 3	71.5	18.4	4.4
September 27	67.8	17.2	4.5
October 24	63.6	16.8	4.6
December 9	62.4	16.7	4.6
February 10	61.2	17.4	4.5

"As I see it," says Davis, "the main thing is to keep the air out of the silage. Chopping short and packing and controlling the moisture help out that way. I used to worry about how much to pack the stuff. Now I know you can't pack it too much if you stop short of pressing the juice out as seepage. If the crop is wet enough to pack good, without squeezing out juice, the exact per cent of moisture isn't important."

Plastic Covers

Stack silos, mere piles of silage covered with sawdust or what-have-you, have never been popular because spoilage often ran 50 to 80 per cent. But during the last few years stack silos, covered with plastic sheets, have staged a comeback. Where the silage has been properly made, plastic covers have practically eliminated spoilage. Around Lafayette, Indiana, a number of such plastic silos, sponsored by Purdue workers, kept various grass mixtures, as well as corn silage, at the harvest stage as they were fed out the past few months. Near Kokomo, Indiana, Claude Wickard, former Secretary of Agriculture, has eight plastic silos in use. In Louisiana, one stockman has several dozen such covered stacks spotted throughout his acreage for convenient filling as well as feeding to cattle on pasture.

A plastic silo is of very simple construction. Round, loaf, layer-cake, and other shape stacks have been tried, but the rectangular shape is perhaps easiest to build. The top is rounded to shed rain. The stack can be built by hand, with front end loaders, with elevators, or by dump truck. The latter method packs the silage best, is the fastest and is also the most dangerous for the driver.

A trench is plowed around the stack for drainage. The plastic cover is put in place immediately, with the dirt from the drainage ditch used to cover the edges of the plastic which should protrude one or two feet beyond the sides of the stack. After a

"BREAD FROM STONES"

Must Reading for GROWERS FARMERS LIVESTOCKMEN

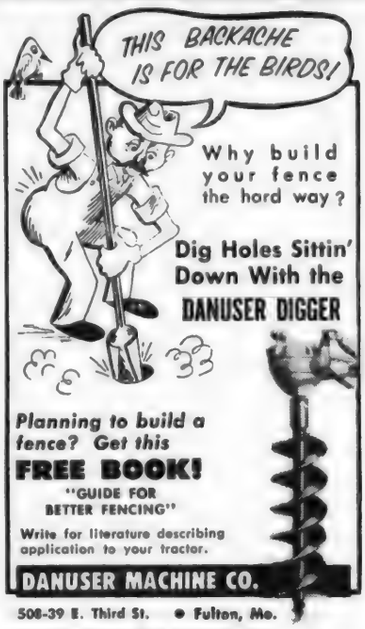
only 25¢

If you are interested in how to build and maintain soil fertility, be sure to send 25 cents (in coin or stamps) for your copy of *Bread from Stones*, written some 60 years ago by Julius Hensel, an eminent German scientist who made a life study of plant nutrition.

Within the pages of this book is a wealth of valuable, common-sense information that you'll want to read before planting time.

Send today to Dept. FQ-3:

POTASH ROCK COMPANY OF AMERICA, INC.
Lithonia, Georgia


THIS BACKACHE IS FOR THE BIRDS!
Why build your fence the hard way?
Dig Holes Sittin' Down With the DANUSER DIGGER
Planning to build a fence? Get this
FREE BOOK!
"GUIDE FOR BETTER FENCING"
Write for literature describing application to your tractor.
DANUSER MACHINE CO.
508-39 E. Third St. • Fulton, Mo.
"Contributing to Farm Mechanization"

NEW FARMING SECRET

MORE AND MORE FARMERS are finding out about trash-mulch farming the Rotavator way. The Rotavator is a tractor-mounted (or trailing) rotary tiller with tillage widths up to 80 in. The slice-loosen-mix action of the self-sharpening Rotavator blades (powered by the tractor PTO) makes seedbeds in one pass, mixes down cover crops, chops and buries trash. Rotavation renovates old sod and pasture. Rotavating builds up humus, leaves soil loose and crumbly, doesn't waste rain by runoff and gullying, but lets the soil drink it up. It helps protect against wind erosion, gets rid of Johnson and Bermuda grass and other noxious weeds. Write today for booklets telling the whole story, and for the name of your nearest factory-trained Rotavator Distributor, to:

HOWARD ROTAVATOR
Arlington Heights 28, Illinois

Silos of VISQUEEN film can be placed anywhere for easiest feeding. A few hours' work is all that is needed to put them up. You can make and store silage in silos of black VISQUEEN film with equipment you already have.

REPORT ON SILOS OF BLACK VISQUEEN™ FILM CAN PUT CASH IN YOUR POCKET NOW

Proved On Farms Like Yours

How Farmers The Country Over Beat The Weather, Make Better Silage Easier and Cheaper In Trench, Pit, Bunker, Self-Feeder and Stack Silos.

Last year—for just *pennies per ton*—farmers the country over turned forage crops into higher milk, beef and pork profits with field silos of black VISQUEEN film.

These farmers proved: *There is no better, easier and cheaper way to make top-quality silage.*

Loss Cut 50%

They produced, preserved and protected highest silage nutrient values from field to feeding. Cut dry matter losses 50% over uncovered field silos.

They had hardly any spoilage—thanks to airtight black VISQUEEN film.

They ensiled from 10 to 10,000 tons of choice, early cut grass, legumes, sorghums. They did it on all *kinds* of farms—from one-man operations to huge cattle feeding lots.

They beat the weather. Cut down on work with field silos of black VISQUEEN film.

Cattle Eat More

You can do it with equipment you *already* have. No costly drying. No expensive silos. No more big investments.

When you follow the easy instructions, airtight, weatherproof silos of black VISQUEEN film *lock silage* nutrients in. There's no leaching out of feed value. Silage is more palatable. Cattle eat more. Conversion is better. Carotene, protein and other valuable nutrients are retained. Little packing is needed. Juices—and their nutrients are saved.

There's a lot less temperature rise than in uncovered field silos. Low temperatures inhibit carmelization that robs silage of feed value.

Write for illustrated book and name of your VISQUEEN film distributor.

When you buy, be sure you get VISQUEEN black agricultural film. Only black film resists breakdown by strong summer sun. You can be sure by looking for the brand name VISQUEEN printed every foot on the film, for your protection. Only VISQUEEN film—the pioneer agricultural polyethylene film—comes in *seamless* widths up to 32′ for easiest handling and stronger silo covers.

VISQUEEN black polyethylene films are used as haystack covers, upright silo caps, material covers, farm pond liners, poultry house liners, equipment covers, mulches, manure pile covers, brooder curtains, drop covers and tarps, ditch liners. VISQUEEN clear polyethylene films are used as vapor barriers, under concrete foundations, row crop covers for earlier maturing plants, tobacco bed fumigation blankets, egg container liners, greenhouses and cold frames.

VISQUEEN *film—the first and foremost polyethylene film. A product of the longer experience and outstanding research of* **VISKING COMPANY** *Division of* UNION CARBIDE *Corporation*
P. O. Box FQ3-1410, Terre Haute, Indiana.
In Canada: VISKING COMPANY, DIVISION OF UNION CARBIDE CANADA LIMITED, Lindsay, Ontario.
VISQUEEN and VISKING are registered trademarks of Union Carbide Corporation.

NEW

QUICK DETACHABLE EXTENSION SECTIONS.
AUTOMATIC SPRING CHAIN TIGHTENERS.
BALL BEARINGS, GREASED FOR LIFE.
FULL 22 INCHES WIDE.
ONLY 7 LBS. PER FT.

MAYRATH

MAKES 80% OF ALL GRAIN AUGERS

	BOTTOM SECTION	EXTENSION
18 FT.	$79	$69
23 FT.	$89	$79
28 FT.	$99	$89

WITH MOTOR MOUNT AND DRIVE

BALE MOVER

SATISFACTION GUARANTEED OR MONEY BACK

GALVANIZED — 30 BU. PER MIN.

6 IN. AUGERS

STANDARD & TRUCK AUGERS

16 FT. $69 TO 41 FT. $275

ALL PURPOSE AUGERS

11 FT. $39 TO 41 FT. $99

JUNIOR AUGER

11 FT. $19 TO 21 FT. $29

20¼ IN. — 100 BU. PER MIN.

CORN & HAY ELEVATORS

17 FT. $138 TO 40 FT. $340

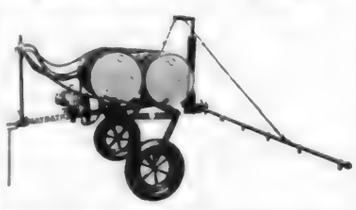
CROP SPRAYERS

SINGLE HEAD SPRAYERS $119

BOOM SPRAYERS

20 FT. $149 TO 40 FT. $179

TRAILER MOUNTED SPRAYERS ADD: $30



PRICES F.O.B. DODGE CITY, KANSAS, OR COMPTON, ILLINOIS

few days, when the silage has settled, the slack is taken up by adding more soil at the edges of the plastic. The silo should be made in dimensions readily covered by standard sized plastic sheets. Rounding the top of the stack reduces the size of the sheet needed. A 24-foot-wide sheet, obtainable in any length, permits building a completely covered stack 14 feet wide at the base by 7 feet high in the center, which will hold 1.1 tons of silage for each foot of its length. A 32-foot sheet will cover a stack 19 feet wide at the base by 9½ feet high in the center, which can hold 2 tons of silage per foot of length. These dimensions allow one foot of plastic at each side for burying in the trench.

Plastic-covered stack silos, of which the cover is the only expense, run from 50 cents to $1 per ton of storage space, according to the grade and kind of plastic chosen. The material costs from 1¼ to 4 cents per square foot. Only black plastic is recommended. The ultra violet rays of the sun rapidly deteriorate clear films. The .006-inch (commonly referred as 6 mil) thickness is preferable to the .004-inch thickness; plastic supported by nylon fibers is the most durable, though it is more expensive. At least one manufacturer makes custom covers with electronically welded seams, made to fit any shape stack.

It was formerly recommended that plastic covers on any kind of silos be covered with straw or sawdust or similar organic materials. The practice has been abandoned because it attracts burrowing vermin and insects. With nothing on top of it, the plastic allows the silage odors to be released slowly and in minute quantities. When it is covered the odors escape in concentrations which attract the pests.

Air holes in the plastic cause rapid molding, though adhesive patches can be applied. Trench, bunker and stack silos covered with plastic must be fenced to keep livestock, poultry and pets from puncturing the material. For the same reason, the silo must be erected away from trees, where branches might fall on it, and planks with nails or other sharp

NEW! IOWA

SUCTION BLOWER

UNLOADS 3 TONS OF CORN SILAGE In 6-8 MINUTES

ALSO chopped straw, hay, sawdust, shavings

Bigger Performance at Lowest Cost

2 sizes: LARGE Iowa Blower or SMALL Cizek Blower. Belt or P.T.O. Models

NO-CLOG PIPES . . . RUBBER FLEXIBLE INTAKE LONG SWEEPING ELBOW FOR GREATER SUCTION

Tested and proven BEST by most rugged use Iowa farms could give it

Write for Literature

DEALERS AND DISTRIBUTORS WANTED

CIZEK MFG. & DISTRIB. CO., Clutier I, Iowa

objects should never be used to weigh down the cover. Once a tear develops, the wind gets under the cover, which acts like a bellows, pumping in air.

Handling a sheet gives trouble. It should be unrolled over the silo instead of being slid into place. It should be walked on as little as possible. Old tires are good for holding the sheets in place. One of the best methods of holding down the rolled-back part of the sheet as the silage is being fed out employs an old fire hose filled with sand, around which the plastic is rolled as the silo is opened.

"Stack plastic silos," says Dr. Hill of Purdue, "are primarily for temporary or emergency use to accommodate surplus silage. They preserve silage better if kept small, from 50 to 80 tons, under a single plastic sheet. That amount of silage can be put up in a short day. It should be covered at once. If more silage is to be made, extra stacks should be erected.

"Plastic silo storage sounds cheap at 50 cents to $1 a ton of storage space, but since the covers seldom last over two years and usually only one year, the cost of this type of storage could be higher than the more permanent structures."

Feeding Grass Silage

To Selmar Lehmann, who farms the 1170 acres he owns in partnership with Forrest Ketner at Lockbourne, Ohio, "grass silage won't do the job alone. Add it to corn silage and you've got more nearly a balanced ration. It's the cheapest way to produce milk and beef except for pasture."

Lehmann's three upright silos, totaling 500 tons, have always been reserved for corn silage for the older cattle. Eight years ago he built two trench silos, side by side; one holds 1000 tons of corn silage and the other holds 1500 tons of grass. The grass silage was fed to calves up until three years ago. That year they were given a mixture of corn and grass silage together. "We got by with much less purchased protein and still got the gain," Lehmann says. "We've been using mixed grass and corn silage on all the cattle ever since. The amount of grass silage in the combination is reduced for older cattle as they near market weights. Between 500 and 600 are fed out."

Hay is fed under cover but all silage is fed outside in bunks, which are filled from a Farmhand feeder-mixer body mounted on a truck. The truck is backed into the first silo and a layer of grass silage is spread down its length. The depth of the layer is determined by the proportions of grass silage to corn silage intended for the cattle. The truck then moves to the adjoining trench silo where the corn silage is loaded on top. From there the truck passes through a granary, where concentrates are added. A bag of concentrate is opened at one end of the truck and spread down the middle of the load. The side unloader of the truck body is equipped with beaters which mix the silage and concentrate as they are dumped into the feed bunks.

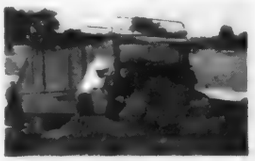
"My Cobey Self-Unloading Forage Wagon Is The Best Investment We've Made"

says Bob King of Findlay, Ohio

"As a self-unloading forage wagon, it can't be matched. And when we found we could use it for following the combine, the picker, or haul baled hay with it and do all our hauling and cut out our scoopping — it turned out to be the best investment we've made."

One Wagon Does It All!

From hauling 138 bales of alfalfa to bringing in 5 tons of ensilage at a load — and all the jobs in between — your Cobey 51-B will do them all!



THE COBEY 51-B SELF-UNLOADING FORAGE WAGON — here's the best forage wagon ever built. All steel construction. Automotive type steering and tapered roller bearings for fast hauling — sure trailing. Precision machine cut gears and throw-out clutch operate in oil. 4-chain slat type conveyor. Grain tight floor and 100-bu. sides. Forage sides easily removed — making it a straight grain bed — or remove grain sides for hauling baled hay . . . AND IT IS PRICED AT A SAVING TO YOU! Write for full information.

THE Cobey CORPORATION
206 South West Street Galion, Ohio

PTO SPREADERS — COMPLETE LINE OF WAGONS — 3 POINT HITCH TOOLS — MULCHERS — PULVERIZERS — ROTARY HOES.

Please send me full details on the FEATURE-PACKED COBEY SELF-UNLOADING WAGON.

Name_____

City_____

R. R._____ State_____

SF 5

ENSILOADER®

For Digging and Loading Silage from Trench Silos

For lower feed handling costs, this is the fastest, most efficient method ever devised Silage shrinkage is kept to absolute minimum as well as labor and loading time. Any type silage may be loaded. The ENSILOADER is built in several sizes and mounts on a tractor or truck. The model HO-12A shown, will reach 14 ft. silage depth and load at over one ton per minute. Investigate and discover why ENSILOADER is becoming so popular and well known.

Write

OSWALT INDUSTRIES, INC.
Box B-274,
Garden City, Kansas

There is very little spoilage under the plastic covers of the trench silos. "Even before we used plastic covers, we never covered the trenches with anything but the grass silage," says Lehmann. "When the silage trucks are rolling and you are all set up for silage, nothing you could haul would be cheaper than the silage itself."

Lehmann, who uses bisulphite as a silage additive, was one of the first to use the grass and corn silage combination to provide a high-carbohydrate, high-protein

Ideas for Planning Your Milking Parlor

How many stalls will you need . . . which type of stall is best for your operation . . . how much time and work can you save? The answers to these and other questions are given here.

by Joe Clay

A good, well-planned milking parlor can be a real time and work saver for dairymen. But, like every other phase of modernization, you can't jump into a milking parlor without planning. These tips on the organization of a modern, efficient parlor can save you money and help avoid problems you might have to face twice a day, 730 times a year.

Eight minutes per cow . . .

In your new milking parlor, allow about 8 minutes per cow—including feeding time. That means you'll milk 7½ cows an hour per stall, with one operator. Here's how to decide how many stalls you'll need for greater efficiency:

With two stalls, you'll milk 15 cows per hour. Three stalls allow one operator to milk 22.5 cows in an hour. Four stalls and one man can manage 30 milkings per hour. Six stalls need two operators, but you'll milk 45 cows per hour. With two more stalls, plan on 60 cows per hour from two men. That's milking *and* feeding, too.

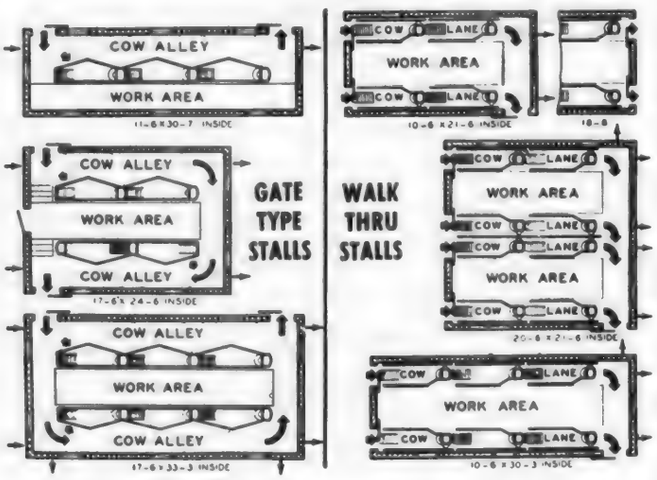
The secret of this time and labor saving is simply that cows bring the milk to you. Then, too, with a milking parlor, the udder is elevated—at the best working level. With levers, feeding mechanism and washing equipment within a few steps, you'll cut hours a day from the milking chore.

With the new Clay milking parlor stalls, easy-to-operate handles control mixing and measuring of feed. You'll feed cows with a flick of your hand.

There is little difference in milking time between gate type and walk-thru installations. Some dairymen prefer gate stalls because of occasional slow milkers. Also, they like to give individual attention to certain cows. Personal opinion, amount of space available, number of operators, and handling of cows are important factors to be studied before deciding on type of stalls.

MILKING PARLOR BULLETIN FREE

The newest, most up-to-date information on planning milking parlors is contained in a new book by Mr. Joe Clay. A copy will be sent to you free on request. Write to: Clay Equipment Corp., 382 Fulton St., Cedar Falls, Iowa. Free books also available on Silo Unloaders, Mechanical Feeders, Barn Cleaners and Crop Driers. Please specify which of these free books you want.



Two types of stalls—gate type and walk-thru are shown here. Minimum space requirements are shown on sketches. Arrows show entrance and exit of cows. Pick out the plan that most nearly fits your need. Mark this plan with pen or pencil and mail to Clay at address in box above. We will gladly send you standard floor plan and money-saving ideas. This service costs you nothing.

feed. He passed the idea along to Walter Hunnicutt, of National Dairy Products, who promoted it among dairymen, some of whom have given the system a few twists of their own. Fred Matthis, who prefers wilted silage, has a reversible motor rigged up to the auger-type self-feeder which runs the length of his loafing barn. Twin tower silos stand at the two ends of the barn, one silo holding corn silage, the other grass silage. Silo unloaders along with the auger feeders make combination silage feeding completely mechanical. Matthis has his own rule of thumb to judge the protein content of his silage mixture. When the protein is high, he notices a thickening of the milk as it runs through the strainer pad. "When the protein is low," he says, "the milk runs faster. Then I have to adjust my grain ration by adding more supplement."

At Mocksville, North Carolina, Paul Blackwelder, top Guernsey dairyman, double decks his silage. Grass goes in the trench first, with the silo half filled horizontally down its length. This is covered with plastic. In the fall, the cover is temporarily removed while corn silage is spread on top of the grass. The cover is then replaced. When fed out, a vertical slice at the open end of the silo gives a half corn and half grass mixture.

"Like everybody else," Blackwelder says, "I used to think that if silage smelled good and looked green and the cows liked it, it was top silage. Now, I go along with Dr. Sprague of Rutgers who says that the amount of beef on the hoof and milk in the can that silage produces is the real mark of quality."

OVER THE BACK FENCE

(*Continued from page* 21)

Politics Rears its Ugly Head Mr. Raymond Peterson of Blue Mound, Wisconsin, writes in to inform us that until he finds out what our politics are he isn't going to subscribe to our magazine. That puts us behind the eight ball in more ways than one and we're afraid that we're damned no matter what we are. But Mr. Peterson's letter did remind us that we perhaps ought to find out the color and stripe (politically speaking) of members of our staff. A poll turned up a surprise. While almost everybody around here is either pro-Benson, or anti-Benson, or pro-Eisenhower or anti-Eisenhower, or pro-Truman or anti-Truman, no one knows whether this makes him a Republican or a Democrat. So it appears that we'll have to get along without Mr. Peterson's subscription.

Gesuntheit! The human race is out-growing a lot of its old habits and mores and we don't know whether the new is as good as the old or not. One of the straws in the wind is the decline in the use of snuff. No sociologist or statistician seems to have noticed this, or if they did, they gave it much less importance than it deserves. Last year, the snuff people tell us, only 36½ million pounds were sold, a decline of 5 per cent from the year before. This is alarming. While 36 million odd pounds of the old Copenhagen is quite enough to generate a sneeze heard 'round the world, if somebody doesn't do something to reinstate snuff-taking as a social amenity, there won't be any of the stuff around in twenty years. Figure it out for yourself. Tobacco chewing is passing out, too, which is just as well, but we can't afford to lose snuff.

Of Pickles and Sport Shirts The U.S.D.A. has done it again. In their tireless efforts to spend their appropriations and bring culture and progress to the submerged masses in the rural hinterland, the department announces a number of new bulletins. Heading the list is the title "Pickle Pointers." Fourth down on the list is "When You Buy a Sport Shirt." It beats all what a Ph.D. can cook up over a cup of coffee.

A Bee-Repelling Insecticide Research at the Oklahoma Agricultural Experiment Station shows that a new compound, called Hydroxyethyl-tert-octyl sulfide, looks promising as a repellent to keep bees away from fields

8 to 48 hours after they have been sprayed with a deadly insecticide. Further tests are under way to find out if the repellent affects seed or fruit production. In experiments this year, the repellent did not injure either cotton or cantaloupe plants. The Oklahoma researchers believe that if the new material continues to prove successful, its value in saving bees from freshly treated fields would be immeasurable. They further state that their findings would be particularly applicable to alfalfa as well as other crops that depend on good pollination for seed development.

Scratch No More Industries employing men as outdoor workers are taking the itch out of ivy poisoning—one of the chief causes of lost man-hours—by issuing a immunizer which comes in a one-ounce bottle, enough to last a whole season. Mass industrial tests over the last four years show that preventive treatment started six weeks before the men might be exposed to poison ivy, oak or sumac, gives 75 to 90 per cent protection. The immunizing treatment, Oral-Ivy made by Milderm Research Laboratories, Philadelphia, has been mass tested by medical and safety directors on tree service workers known to be subject to ivy poisoning. It also has been clinically tested by physicians with private patients who suffer annually from the skin poisoning.

SAVE $11 to $16 a ton on feed with...

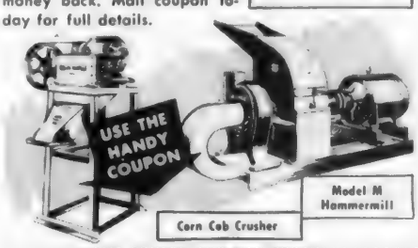
MIX YOUR OWN FEEDS

KELLY DUPLEX FEED MIXERS

Mix your own cattle, hog, poultry feeds. Get a perfect blend in 10 minutes, save 55c to 80c per 100 lbs. Rugged—easy to operate—absolutely noiseless.

It's just as easy and profitable to make your own poultry litter with a Kelly Duplex Cob Crusher—or to grind grain with a Kelly Duplex Hammermill. Satisfaction guaranteed or your money back. Mail coupon today for full details.

Vertical Mixers — all sizes—small as ½ ton



CLIP COUPON AND MAIL TODAY!

The DUPLEX MILL & MFG. CO., Box 24, Springfield, Ohio

Send me full details on items checked.

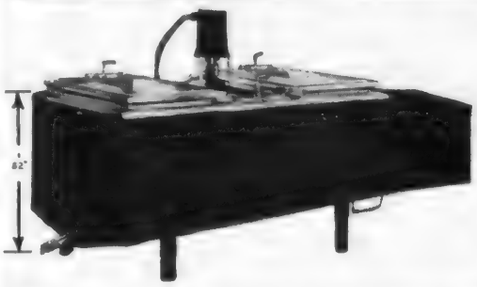
☐ Feed Mixers____ton cap. ☐ Cob Crusher ☐ Hammermill

NAME_____

ADDRESS_____

Cherry-Burrell Farm Tanks

...so low (in height)



Direct Expansion Rectangular Tanks with V-bottom take less volumetric space than any other shape ...assure lower rail height for easy dumping, cleaning . . . give more effective cooling, with less milk needed to cover refrigerated surface . . . promote better agitation with positive fat dispersion.

Complete Package Units: 210, 300 and 400 gallons.

Remote Installation Units: 210 to 1000 gallons.

...so low (in price)

Direct Expansion Cylindrical Tanks — the lowest priced, small tanks you can buy. 90- and 150-gallon sizes. Fit any milkhouse . . . pay for themselves in three years at conventional savings of 25¢ per cwt. Ready to run when plugged in. Wide-sweep, slow-speed agitator.

...so low (in power needs)

Ice Bank Tanks—use only half the current needed by conventional spray-type tanks. No water pump or agitator motor to run after milking to hold milk to 40°. Power costs on par with most direct expansion tanks. Full-length sidewall cooling and aerating. Since warm milk never dumps into cold milk, blend temperatures always below 41°.

Complete Package Units: 120, 185, 285 and 400 gallons.

Remote Installation Units: 185, 285 and 400 gallons.

SOLD, INSTALLED AND SERVICED BY DEALERS FROM COAST TO COAST

CHERRY-BURRELL CORPORATION

427 W. Randolph Street, Chicago 6, Ill. FQ-3806

Serving the Dairy Industry Since 1869

Please send me literature on your farm tanks.

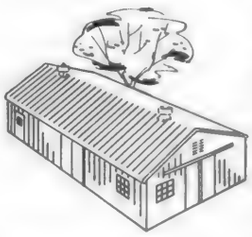
Name_____

Town_____

R.F.D.____ State_____

Buy these panels...
Close-up shows how two panels bolt together to form V-rib that makes LOK-RIB Steel Buildings extra strong — and extra easy to erect.
Build this building!

Goes up faster—lasts longer—costs less!



New! Inland Straight Sidewall Steel Buildings. Tapered rigid frame provides strength, economy, versatility. Available in varying widths and lengths. Send coupon for more details.

You can erect a LOK-RIB Steel Building in a hurry! There's no special framing to wrestle with —you simply bolt together the 18-gauge LOK-RIB Steel Panels.

Once it's up, you've got a building of amazing strength. If you were to build a frame structure just as strong, you'd have to support it with two-by-fours *every 3½ inches* along each side wall — and it would take a lot longer to erect!

Better yet, LOK-RIB is safe from fire — because steel can't burn! And you're protected also from damage by windstorms, snow, ice, rot and rats.

There's a LOK-RIB that's the right size to meet your needs. Free bulletins tell how you can get it now and take five whole years to pay. Mail the coupon.

LOK-RIB
STEEL BUILDINGS

TEAR OUT COUPON AND MAIL TODAY!

INLAND STEEL PRODUCTS COMPANY LOK-RIB Steel Buildings
Dept. C, 4089 West Burnham Street, Milwaukee 1, Wisconsin
Send me free bulletins on:
☐ Lok-Rib Arch-Type Steel Buildings. ☐ Inland Straight Sidewall Steel Buildings.
I am thinking about:
☐ machinery shelter ☐ grain storage ☐ dairy barn
☐ cattle shelter ☐ hay storage ☐ poultry house ☐ other.....
☐ Have a LOK-RIB representative call on me.

NAME.....
ADDRESS.....
COUNTY.....
CITY.....STATE.....
I am an ☐ owner ☐ tenant ☐ student LR-14

THE FAMILY COW

(*Continued from page* 59)

Saturdays I worked all day for a load of hay—it mattered little how much a day's work was worth or what hay was bringing—you pitched hay for a farmer and then brought the last load home. I'd take the horses back on Sunday morning.

To house the cow, I spent hours insulating the old carriage shed with cardboard cartons, and rigging plumbing from old gutters. This contraption led from the pump near the house to the barnyard, where it emptied into a sawed-off barrel.

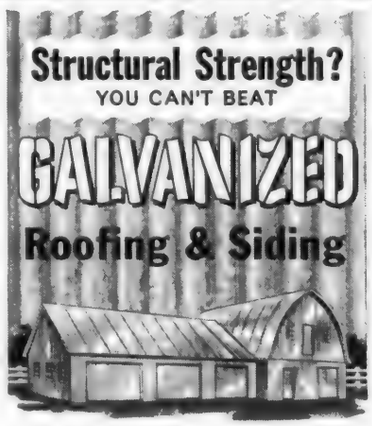
You hear tales about milking in the dark by the light of an old kerosene lantern, morning and night every day all winter, and milking outdoors morning and night all summer. I did all those things.

For pasture, we either staked out the cows in the wide ditches along the highway or rented pasture from elderly ladies who lived on the edge of town.

There were two lovely ladies—one a widow and the other a spinster—who had pasture for rent. They, too, had cows. Cows are gregarious and thrive on company. Town cows get lonely. They wear themselves out bawling and patrolling the fence, leaning methodically on every post, and making very little milk.

I used to walk to pasture and milk there rather than drive the cows back and forth. Feed was served in a dishpan. It was up to the milker to finish milking before the cow finished eating and walked away.

We practiced some feeding tricks that would be impossible on a big dairy farm,



THE STRENGTH OF S-T-E-E-L PLUS THE RUST PROTECTION OF Z-I-N-C COATING!

Strength . . . rigidity . . . ability to withstand rough treatment . . . dependably yours with *galvanized* sheets. *For best value,* buy sheets with a *Grade-Marked* label that shows the weight of zinc coating *in ounces.* And for longer service, specify heavy-coated sheets such as this . . . "Seal of Quality".

ZINC INSTITUTE 2 oz. COATING SEAL OF QUALITY

FREE INSTRUCTION MANUALS!
Write To Field Office
American Zinc Institute
324 Ferry St., Lafayette, Indiana, Dept. FQ-3

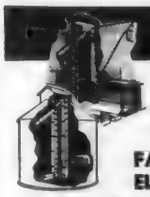
but they were effective. One was hot mash. In winter we'd put feed in a dishpan and run steaming hot water into the ration before taking it out to the cow. She liked that fine. We poured hot molasses over poor hay, and she liked that, too.

Our cows were always thirsty. No growing boy will take the time to clear the ice out of a wash tub and lug enough buckets of water to keep a cow giving all the milk she should, and no cow will drink all she needs when she has water in front of her only three times a day.

Modern dairymen would scoff at a cow eating melon rinds, left-over salads, potato peelings, over-ripe fruit, pea pods, corn shucks, spaghetti, etc. We fed garbage. One of our cows, Susie, liked meat.

This mixed diet didn't seem to offset the flavor of the milk much. We used our milk raw, but we used it very quickly. Milk was also kept scrupulously clean, not by modern standards, but by my mother's. Mother said she could see germs with the naked eye. I can see now when she poured the warm milk through a cheesecloth strainer about all she got out were the frogs and the flies. But it looked clean and tasted fine.

We did have trouble with wild onions. In a big dairy, one cow with off-flavor milk probably doesn't affect the whole bulk milk tank. When the herd is just one cow, and that cow is filled with wild onions, the milk is fit only for onion soup.



Crib Plans FREE!

Send for FREE Crib blueprints and materials list. Also FREE Elevator Catalog showing 10 styles.

FAMOUS MEYER BUCKET ELEVATORS, Corn Belt leader. Rugged—no short turns—wide, extra-heavy buckets—50 bu. corn or small grain in 3 minutes. Choice malleable or roller chain. Exclusive new hoist. *Write today!*

MEYER MFG. CO.
BOX 752 MORTON, ILLINOIS
Makers of Famous Meyer Elevators

Increase Your Farm Profits

Did you know that according to Extension Bulletin No. 253, 82% of the red clover pollination is done by Honeybees?

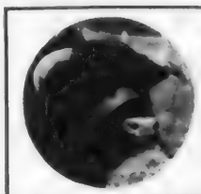
This is also true of most fruits and vegetables.

The only way you can be sure your crops are properly pollinated is by having bees on your farm.

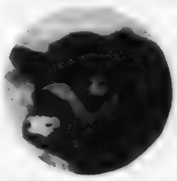
Make sure you get the largest possible crops with a dividend of honey by sending for Extension Bulletin No. 253 and your 1958 Root Bee Supply Catalog.

THE A. I. ROOT COMPANY
DEPT. 30—MEDINA, OHIO

For outstanding farm books, see the Farm Book Store on page 150.



FOR GREATER BEEF CATTLE PROFIT



Here is what a SHORTHORN or POLLED SHORTHORN (naturally hornless) bull can do to increase beef herd efficiency:

increase **weaning weights 50 to 100 pounds . . .** ***increase*** **calf crops 10 to 15 per cent . . .** ***increase*** **yearling weights 100 to 200 pounds . . .** ***increase*** **mature cow weights 100 to 200 pounds . . .** ***increase*** **grazing efficiency and traveling ability . . .** ***increase*** **milk in replacement cows . . .** ***increase*** **resistance to heat, cold, pink-eye, cancer eye and other infections . . .** ***increase*** **carcass value . . . and finally,** ***increase*** **market returns by bringing higher prices for weight.**

Write for literature and sale dates today

AMERICAN SHORTHORN BREEDERS' ASSOCIATION Dept. FQ, 7 Chicago 9, Ill.

Here's the nation's *best* manure handling team-- Farmhand's 6-ton "Power-Box" and F-11 Loader!

THIS FARMHAND TEAM of manure-handling implements takes the time and hard work out of "big job" spreading. It's the perfect combination of the nation's *biggest spreader*, the 6-ton "Power-Box", and the *best manure loader* on the market, the Farmhand F-11. And famous Farmhand quality means top performance at lowest cost year after year.

OUTWORKS AND OUTLASTS all others. That's the Farmhand 6-ton "Power-Box" Spreader. It shreds and spreads in wide, even swaths . . . under smooth, dependable PTO power. Special aluminum alloy sides, treated marine plywood floor, heavy-duty worm gear driven floor conveyor. Mounts on truck, Farmhand Tandem Trailer or Heavy-Duty Wagon.

3500 LB. LIFT CAPACITY is only one of the Farmhand F-11's many important features. You'll like, too, the double-acting lift and tilt cylinders, the new plug-on hydraulic pump and the 17-ft. reach. The F-11 mounts on most 2, 3 and 4-plow tractors. Full line of attachments includes Hay Basket, Grapple Fork, Scoops and Rock Picker.

Farmhand
FIRST IN FARM MATERIALS-HANDLING

FREE BOOKLETS!

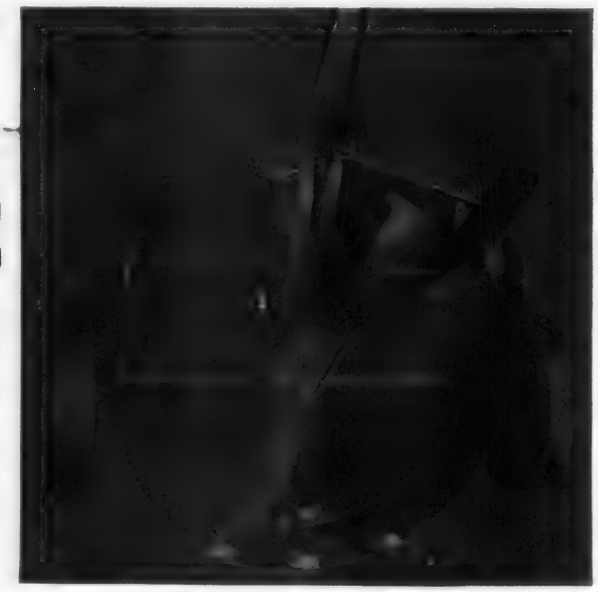
The FARMHAND COMPANY, Dept. FQ-18, Hopkins, Minn.
Send information on_____
Name_____
Address_____
Town_____ State_____
☐ I am a student
A Division of Superior Separator Company

Toughest shredding jobs a breeze for Servis Gyros

Tough, fibrous, heavy, these okra stalks are 3" across, 6' high. The Servis Gyro-57 pulverizes them easily, steadily, without a hint of clogging.

Here's why...

Tremendous blade momentum gives cutting power far exceeding simple PTO action. Intermeshing blades chop exceptionally fine. Fan blades, suction skirt, deflector ribs keep stalks in the air.



See it demonstrated by your Servis dealer. Write for his name.

Servis EQUIPMENT CO. DALLAS, TEXAS

Servis Equipment Company
1000 Singleton Blvd.
Dallas, Texas

Dept. MFQ

Please send me information on items checked.

Name_____
Address_____
City_____ State_____
Type Tractor Owned_____

- ☐ Gyro 84 Brush Cutter (Pull-type)
- ☐ Gyro 66 or 57 Shredders (Pull-type)
- ☐ Gyro 66 or 57 Shredders (Lift-type)
- ☐ SC-80 Rotary Mower
- ☐ E-60 Clipper
- ☐ Pasture Renovator
- ☐ B & W Row-Weeder
- ☐ No. 7 Angledozer (Row Crop Tractors)
- ☐ Dump Type Rake
- ☐ Hudson Automatic Row Marker
- ☐ 3-Way Ditcher-Terracer Blade
- ☐ Heavy Duty 3-Way Ditcher-Terracer Blade
- ☐ Model "I-H" Whirlwind Terracer
- ☐ Model "F" (3 pt. lift) Whirlwind
- ☐ "Sur-Stan" Press Wheel

"Make Pay Dirt Pay More — Join Your Soil Conservation District"

Management in those days meant getting the cow bred on time. We usually walked her over to the nearest dairy farm to be bred and then walked her home. We tried to plan things so the cow would come fresh when school started in the fall.

Leading a cow that far is not easy, even when she's calm. But when she is in heat, it's a real experience. When we took off on these adventures we used a rope halter, tied as tightly as possible, and 25 feet of one-inch rope. Sometimes the cow was in front, sometimes we were in front, and sometimes we bolted along abreast. The idea was to keep the rope taut. We'd snub the rope around a hip and dig in our heels. Much of the time we'd be on the ground. An occasional petunia bed suffered en route.

When a cow became mournful, we turned to Bailey's for the needs. Bailey's Cyclopedia of Agriculture isn't well known today, but we couldn't have done without it. It consisted of four giant tomes and covered just about everything that was known about husbandry. Many of Bailey's theories have since been disproved, but I suppose even a modern cow would respond to a good dose of salts, and Bailey prescribed salts for almost everything.

All our cows got enormous doses of warm Epsom salts dissolved in quart bottles and forced down despite protests. Bailey's had a chapter on "How to Drench."

We gave salts to cure constipation; we also gave them for diarrhea.

Another favorite remedy was nux vomica. To this day I haven't the faintest idea what the physiological function of nux vomica could possibly be. But, we gave it to ailing cows. Seemed to pep 'em up.

For a really sad cow, with dry nose and glazed eye, we threw in a tablespoon of ground ginger.

Bailey's also spoke of what to do with a high molar. One of our first cows, Bessie, had such an infliction. It pained her and she wouldn't eat—not even molasses. I got her mouth propped open with a short broomstick and filed the tooth down with a wood rasp. It never bothered her again, thanks to Bailey's.

Another medical episode involved Susie's eyeball. She was eating soybean hay and in reaching for a bean punctured her eyeball with a weed stem. A cow, blind even

BLUE SPRUCE

COLORADO: excellent 5 year transplants, 8 to 12 in. tall Blue-green to marvelous blue color. Compact and sturdy.

5 for 3.95

Postpaid at planting time. Write for Free Evergreen Catalog

MUSSER FORESTS, BOX 6-G, Indiana, Pa.

FOUNDATION PLANTING!

10 Plants: 6 Pfitzer Juniper, spreader, blue-green. For sunny spots. 4 Japanese Yew, upright, compact, deep green. Sun or shade. All 2 and 3 times transplanted, 10" to 16". Strong roots.

10 for $12.95

Postpaid at planting time. FREE CATALOG

MUSSER FORESTS BOX 6-G Indiana, Pa.

in one eye, is a problem because she is difficult to drive. So I had good reason to bathe her eyeball in hot boric acid, morning, noon and night, for weeks. Finally, it healed. It left a big scar, but she could see.

We were bothered occasionally with impaction. I understand this condition better now than I did then, but I still don't know quite what causes it. Impaction usually resulted when we fed swept feed, which we sometimes could buy for a bargain. My recollection is that the powdered feed formed a cake and stayed more or less dry all the way through the cow. When it got to her rectum it packed tight at a sharp turn, which, according to Bailey, lies just under her backbone. Impaction was something we dreaded since it meant reaching into the cow a full arm's length and removing the obstacle manually.

I wonder now why we never had leptospirosis, or brucellosis, or acetonemia, or hemorrhagic septicemia, or for that matter, aftosa. In later years we tested for TB, but we had few major health problems which we didn't cause ourselves with poor feed, poor hay, or irregular hours.

Warbles were always a nuisance, especially on the heifers I used to pasture in the timber for 75 cents a month. We used to pop warbles out of our animals all winter.

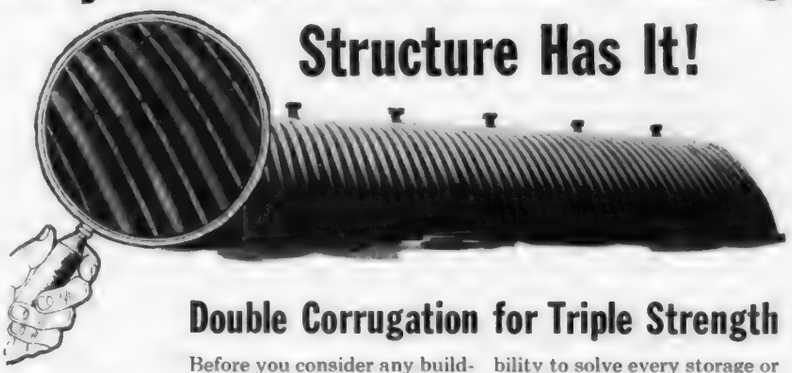
We had a "slick" way of disposing of manure. We had an old trailer and made a tin bottom for it out of some galvanized roofing. We would sprinkle this with salt. Then we'd fill it with raw manure as it accumulated. A week would collect a full load. On Saturdays, we'd hitch a Model A Ford to that trailer and haul it into somebody's garden and tip it backwards. The whole load of manure would slide out in one tightly frozen block, slippery only where the salt had kept it moist. Soon most of the gardens around had their blocks of manure, ready for the gardener come spring.

The manure business was seasonal, but milking and tending the cow was 'round the clock, 'round the year. Up every morning before dawn all winter, to feed and milk, home for milking, feeding and bedding every night. Strangely enough, it wasn't unpleasant. There was always a half hour of peace and quiet, morning and evening, to plan a day's work and to go over what had been done or learned or missed. I used my chore time to think, to conjure up football plays, to memorize parts in the school plays and to practice debate. Cows liked to hear me sing; at least they never complained. How often have I wished, since I have grown up, that I had a half hour in the morning and a half hour every night when I could depend on being alone and unbothered.

Sitting there milking, I once coaxed a rat to come out of his hole and finally got the thing to sit up and lap milk out of the end of the stream. That took three

(*Continued on page* 163)

Only An All-Steel Wonder Building® Structure Has It!



Double Corrugation for Triple Strength

★100% USABLE SPACE—No trusses, braces or posts of any kind

★EASY-TO-ERECT—Do-it-yourself

★MINIMUM MAINTENANCE—Double Corrugation assures triple durability.

Before you consider any building investigate the big savings only an all-steel WONDER BUILDING unit with double corrugation can provide. Simple to erect, you can do-it-yourself—yet a WONDER BUILDING structure is the strongest known.

A WONDER BUILDING structure features amazing adaptability to solve every storage or shelter problem on the farm. You can get a WONDER BUILDING unit with straight sidewalls or arch construction—in a wide range of widths, any length, and any size door opening. All at a low cost afforded only by the patented double corrugation WONDER BUILDING STRUCTURE.

"ENGINEERED TO THE MARKETS" TRADEMARK

Wonder Building

WONDER BUILDING CORPORATION OF AMERICA
30 N. LaSalle · Chicago 2, Ill.

WRITE TODAY FOR FREE ILLUSTRATED CATALOG ON BUILDING IDEAS

WONDER BUILDING CORPORATION OF AMERICA
Dept. N-458, 30 N. LaSalle Street, Chicago 2, Illinois

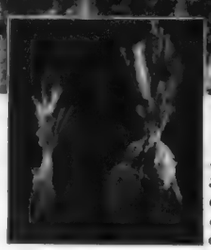
Rush me catalog on building information

Name_____

RFD or Street_____

Town_____ State_____

20 MILLION TREES a year!



THERE IS A DIFFERENCE

← *Heavy Roots* and *Sturdy Tops* of bundle of 15 Musser Seedlings compared with 15 Ordinary Seedlings.

Write for Free Catalog..

with wholesale planting list. Ask for our famous Christmas Tree Growers' Guide.

MAKE YOUR IDLE LAND PAY YOU A HANDSOME PROFIT!

Plant Christmas Trees and Timber Crops

It pays to plant the best. There is as much difference in trees as in common and purebred livestock. Musser trees grow and thrive because of Good Heredity, Careful Selection of Seed and Scientific Culture. Don't waste time and money on inferior stock.

SEEDLINGS and TRANSPLANTS at LOW, QUANTITY PRICE — such as

	Per 1000
SPECIAL STRAIN SCOTCH PINE Very best Christmas Tree strain. From seed collected by our men from selected parent trees. Healthy, sturdy, straight stemmed, rich color.	
2-yr. Seedlings 3-6"	$25.00
2-yr. Seedlings 4-8"	35.00
4-yr. Transplants 5-10"	100.00
AUSTRIAN PINE	Per 1000
2-yr. Seedlings 3-6"	$25.00
3-yr. Seedlings 8-14"	50.00
NORWAY SPRUCE—Fast growing. Seed collected by our men from selected trees.	Per 1000
2-yr. Seedlings 5-10"	$35.00
4-yr. Transplants 8-12"	80.00
DOUGLAS FIR—Hardy.	Per 1000
2-yr. Seedlings 4-8"	$25.00
3-yr. Seedlings 8-12"	55.00
BLUE SPRUCE—Superior stock.	Per 1000
3-yr. Seedlings 3-6"	$30.00
3-yr. Seedlings 6-10"	$60.00

Many other Evergreens, Hardwood, Ornamental and Shade Trees

MUSSER FORESTS, INC. BOX 6-C INDIANA, PA.

FILL UP and GROW!

FILL YOUR APPLICATOR TANK with ARCADIAN® Nitrogen Solutions and take off across your field applying a combination of quick-acting and long-lasting nitrogen to your crops as fast as you want to drive your tractor. All you lift is the end of a hose. Pumps and machinery do the work. ARCADIAN Nitrogen Solutions are ideal for top-dressing or side-dressing crops that need extra nitrogen. The liquid nitrogen soaks quickly into the soil to start crops fast and then keep supplying them with grow power until big yields are matured.

Your crops make money and you save time and labor when you use ARCADIAN Nitrogen Solutions. With simple, economical equipment, you can apply nitrogen to many acres per day. Use this modern, low-cost, time-saving way to make crops pay! Apply ARCADIAN Nitrogen Solutions yourself or get your ARCADIAN Supplier to do it for you. He will rent you an applicator or apply your Solutions at low cost. Contact him today, or write the nearest office below for information.

Fill up and *grow* with ARCADIAN Nitrogen Solutions.

NITROGEN DIVISION
Allied Chemical & Dye Corporation
40 Rector Street, New York 6, N. Y.
Hopewell, Va. • Ironton, Ohio • Omaha 7, Nab.

Allied Chemical

It's *easy* to side-dress with ARCADIAN Nitrogen Solutions, applied with dribble tubes or injected into the soil. Feeds cotton, corn and other row crops ***get-up-and-grow*** nitrogen!

ARCADIAN Nitrogen Solutions flow to the field from the tank through spray nozzles along the boom. This wide-boom applicator top-dresses many acres per day the easy way

Here is your nitrogen filling station. Your ARCADIAN Supplier pumps Solutions into a truck tank for fast delivery to your farm. The hose does the work here and on your farm.

Arcadian® NITROGEN SOLUTIONS

URAN®	FERAN®	NITRANA®
Urea, Ammonium and Nitrate Nitrogen	Liquid Ammonium Nitrate	Nitrate and Ammonia Nitrogen

Copyright 1958 by Nitrogen Division, Allied Chemical & Dye Corporation

DRY LAND SPONGERS

(*Continued from page* 51)

They dehydrate and shrivel within two or three days. The fruit emits spores, as all fungi do. These spores are almost miscroscopic and may be carried away by the wind or on the feet and bodies of animals and birds. Squirrels are known to like morels and cache them for winter. They pass the live spores in their excrement.

When the spore cell explodes, the spores are literally shot into the air. When they fall upon a suitable medium they may germinate and send forth a single long filament to begin the multi-branched, underground structure of the fungus. The fruit body is formed, and by rapid cell production pushes above the surface of the ground. This is the sponge, or morel.

If every spore produced a morel the world would be up to its neck in mushrooms, and even the most gluttonous addict would have his fill. But only the rare spore germinates, and more rarely does the mycelium, the underground growth, find conditions sympathetic enough to develop and thrust its fruit above the surface of the ground. No one knows what these conditions are.

The common mushroom of commerce can be bought by the box or bag, or by the ton, for anyone with a damp basement can grow them with ease. No one has ever been able to grow morels commercially. The man who does so will become a millionaire overnight, and scientists and botanists, knowing this, have been busy during the last century in their search for the tightly-locked secret. It has been found relatively simple to produce the first stages of growth, the germination of the spore, under laboratory conditions. In a few cases, vestiges of fruiting bodies were produced, but even prayer failed to induce the fruit buds to develop. One researcher, Repin by name, claimed to have produced fruiting bodies in a cave in France in 1901. He said he placed cultures in flower pots, stored them in the cave, and nine years later reaped morels. His veracity has been questioned; anyway, members of the clan say, who wants to wait a nine-year cycle; certainly this can't be a lucrative enterprise.

In 1905 a mycologist (a student of fungi) by the name of Molliard reported that he had grown sclerotia on moistened bread and apple pumace. The sclerotia is a hard mass, similar to a corm or bulb, containing the food from which the fruiting bodies grow. Recent researchers report that they have succeeded in growing the organism on starch, maltose, glucose and others, but never to fruition. The sponge clan must still depend on Mother Nature to grow morels.

Laymen among the morel hunters have had a try at growing them in captivity. A patient man, Orin Gessley, of Circleville, Ohio, tells of his frustrations and one small victory: "I've hunted sponges all my life," he says, "and I've tried to grow them for fifty years. Brought in soil from places where I found them, tried every known trick of soil analysis, fertilizer, and moisture. Nary a sponge did I get.

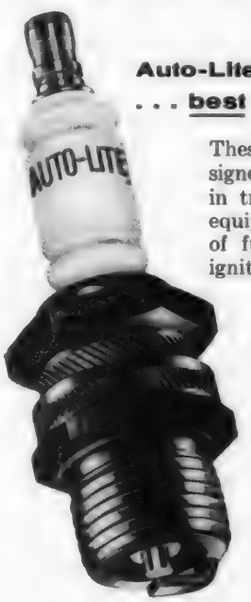
"My mother had better luck. She always dumped the cleanings from a mess of sponges outside the back door under an apple tree. The birds liked the pickings. One spring, about twenty-five years after she had started this custom, a puny morel popped up one morning under the apple tree.

"The only thing I learned in fifty years about how to grow morels was learned from this—that they reproduce in cycles—the spore must require a number of years of dormancy before producing a fruit. And I'm not too sure of this."

Morels are where you find them. And don't believe anything that a morel hunter tells you about that. Some will tell you that you find them only under hickory or ash trees. But the next one you find will be growing under an elm tree or up through a crack in the sidewalk on a busy street.

They have been found lifting newly laid black-top walks, in cinders along a railway track, on lawns, along sandy creek bottoms, and in the deep woods, and most frequently, perhaps, where the humus content of the soil is high. Yet a soil conservation officer recently found two medium-sized (three-inch) specimens in a wash that had eroded to hard pan in which there was not a vestige of humus.

YOU GET
FULL
POWER
WHEN YOU USE
AUTO-LITE SPARK PLUGS



Auto-Lite Transport Spark Plugs . . . best for heavy-duty service

These spark plugs are specially designed for rugged, continuous service in trucks, tractors, and other farm equipment. You get *extra* assurance of full power with these exclusive ignition-engineered features:

- **HEAVIER INSULATOR** gives greater resistance to high-voltage leakage and breakage.
- **INSULATOR TIP** ignition-engineered for longer, cleaner life—safeguards performance.
- **OVERSIZED ELECTRODES** of special alloy give maximum resistance to heat and electrical erosion.

Auto-Lite makes a complete line of spark plugs . . . tops for every engine

Auto-Lite makes a complete line of ignition-engineered spark plugs for passenger cars, trucks, tractors, power mowers and outboard engines, and for auxiliary farm engines. Included is the Auto-Lite Resistor Spark Plug with Power Tip that "fires up" today's passenger car engines at *all speeds*. For full power in any engine . . . be sure you install Auto-Lite Spark Plugs.

AUTO-LITE®
spark plugs

Auto-Lite manufactures over 400 products, including Spark Plugs, Batteries, Wire and Cable, and Automotive Electrical Systems . . . sold throughout the United States and Canada.

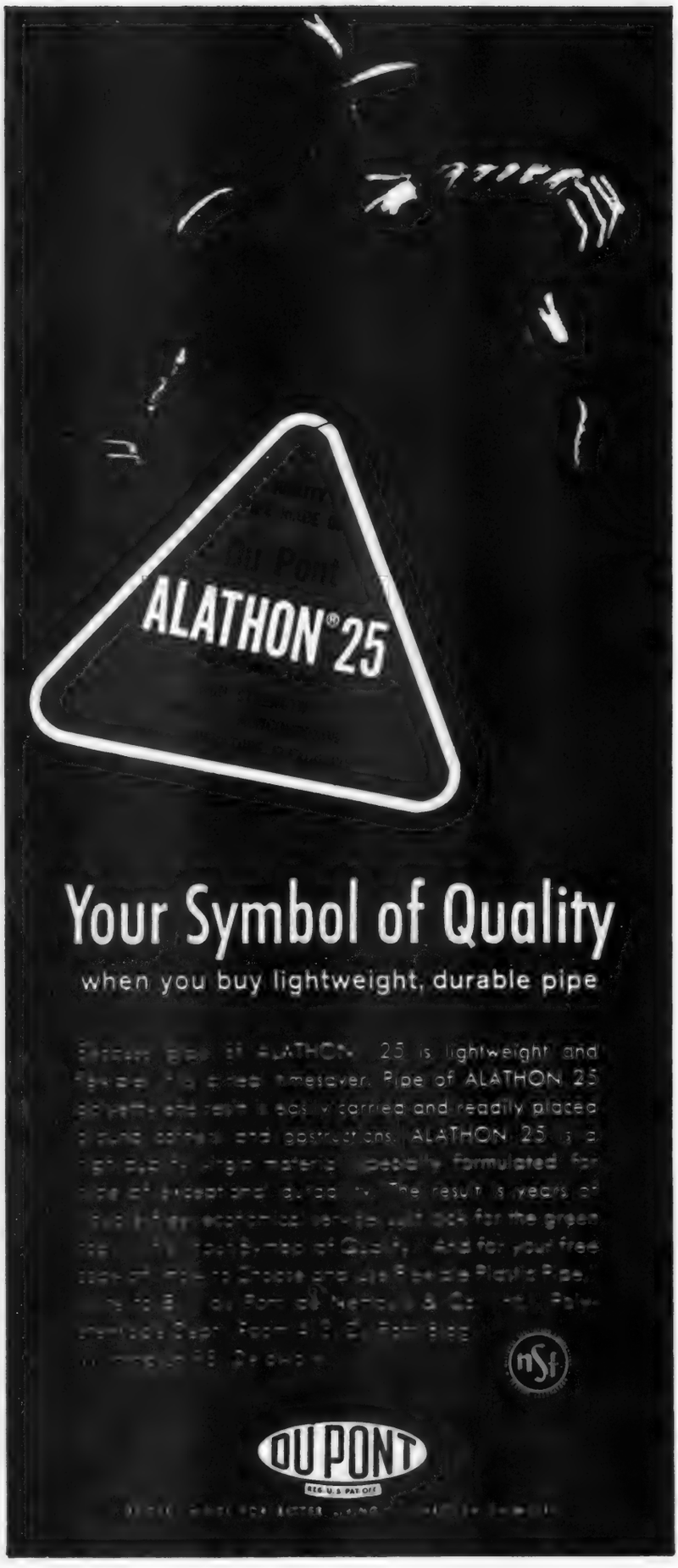
FREE: For a quick and reliable check of your engine's condition, compare your spark plugs with the full-color Auto-Lite "Plug Chek" inspection chart. Mail coupon to:

The Electric Auto-Lite Company
Department (FQ), Toledo 1, Ohio

Name_____

Street_____

City—Town_____ County_____ State_____



All other conditions being right (and what they are no one knows) they probably occur more frequently under or in association with some plants more than others. The elm, oak, apple, hickory and ash are those plants most frequently mentioned. In such instances this may be attributed to symbiosis. The mycelia of the mushroom forms a mantle of delicate, tiny jointed threads on the roots of the host plant. The relationship is not one of parasitism, but rather one of interdependence.

The morels appear in quantity in the cedar brakes of some of the southwestern states and are locally called Cedar Brake Fungi. Under such conditions a mass of debris persists year after year and attains a thickness of several inches. The shade of over-hanging boughs produces and retains humus, thereby producing more favorable conditions for the growth of mushrooms than in unshaded spots. It is more a matter of degree and one cannot necessarily depend on a spot producing large crops over successive seasons. A spot that has produced well over a number of years suddenly becomes sterile, and a spot where none has ever been found just as suddenly begins to produce.

During cold, wet spring weather the well-drained southern and western slopes afford the best hunting. When it is hot and dry the northern or eastern slopes or the bottom lands are more likely spots. People who have kept accurate field records find little seasonal deviation regardless of weather.

The season is short. In most localities it lasts about two and one-half weeks. This could vary depending on the number of species present in any one area. Their season parallels the northward progress of spring starting in February in the southern states, through May in the northern border states. At the higher elevations through the west they may be found in mid-June. Regardless of latitude or altitude, their development is determined by the capricious spring weather. The sound of warm spring rains on the roof is music to mycophagists.

Some of the most consistent and successful spongers prefer river and creek bottoms planted in alfalfa which have not been disturbed for several years, and are subject to flooding. Of course, it always helps to know which part of a particular

HAMPSHIRE—THE UNIVERSAL SHEEP
THE NATION'S MOST POPULAR BREED
For breeders list
AMERICAN HAMPSHIRE SHEEP ASSOCIATION
STUART, IOWA

field has produced mushrooms in past years. All other factors being equal, there appears to be an increase in numbers each year for three seasons after fields have been planted.

For some undetermined reason, forest areas which have been burned over produce large crops. This fact has been known for several hundred years and laws were enacted in European countries to protect forests from mycophagist firebugs.

An interesting observation was made by a man named Sturgis in southeastern British Columbia after a fire in June had charred the ground to such a depth that no vegetation had appeared by September. At an elevation of 7,000 feet, in what had been a poplar and spruce forest, more than a bushel of morels could have been gathered within a radius of 100 yards. They ranged up to seven inches tall and ten inches in circumference. Their appearance in September puzzled mycologists. They were amazed that a subterranean mycelium could withstand such a degree of heat and how spores could have been carried to the locality in sufficient quantities to have produced in one season so large a crop.

There are sections of the United States where morels are sufficiently numerous to attract hunters from considerable distances. One party described a morel hunting trip to the northern peninsula of Michigan. They returned with more than a bushel. One specimen was ten inches tall. Most of them were found on hummocks of humus in a coniferous forest where openings in the tree canopy permitted the sun to shine through. A goodly number of them were found on a sawdust pile of an abandoned sawmill.

Ask a successful sponger where he finds them and he'll give his arm a 180-degree sweep, look you in the eye, and tell you, "Out that-a-way."

The morel is not highly nutritious. It is mostly water, about 90 per cent, and has a rather heavy mineral content, some protein, and no starch. The taste and flavor is the thing, and who would want more? Attempts to describe the flavor of morels have met with less success than the efforts to grow them. Your question about flavor will usually be met by a generalization, "It's heavenly," or "It's better than anything you ever et," or just a simple look of ecstasy. In the south, they

GAME BIRDS

COTURNIX

Mature strong fliers, wild condition for shooting preserves. 10 pair for $30.00. Special prices on 500 or more.

NORTHERN BOBWHITE QUAIL

10 pair Mature Birds for $40.00. Best quality for Breeders or Restocking.

SOLD OUT OF CHUKARS UNTIL JUNE

Minimum order 10 birds, prices f.o.b. Joplin, Mo. Check with order please. FREE booklet of instruction with each order. Write for facts about Successful Restocking.

LOWRANCE QUAIL FARM

Telephones Mayfair 4-4755 Mayfair 3-3643

1730 Picher Joplin 4, Mo.

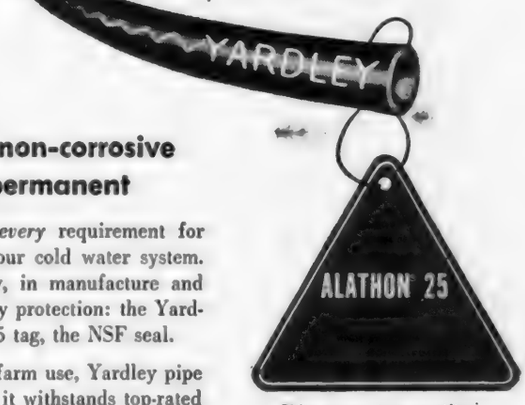
for LIFETIME WATER SERVICE

...insist on

YARDLEY

flexible

PIPE



Easy to install, non-corrosive ... and it's permanent

Yardley pipe meets *every* requirement for complete satisfaction in your cold water system. Your assurance of quality, in manufacture and basic material, is this 3-way protection: the Yardley imprint, the Alathon 25 tag, the NSF seal.

Made specifically for farm use, Yardley pipe is safe for drinking water; it withstands top-rated pressures even after years of use; resists corrosive soil chemicals.

Run lines easily, quickly, at low cost wherever you need cold water — your home, milk house, barn, livestock, poultry and gardens. Flexible long lengths (up to 400 ft.) save fittings, time, money. Six sizes, ½ inch to 2 inches. Three working pressures, 75-lb., 100-lb. and 125-lb.

Don't just buy pipe. Make *sure* it is made by Yardley, the pioneer of improvements in plastic pipe. Write for free literature.

This green tag *certifies* Yardley pipe is made of all-new resin formulated specifically for use in plastic pipe.

Seal of approval for transmission of drinking water certified by the National Sanitation Foundation.

YARDLEY PLASTICS CO.

142 PARSONS AVENUE, COLUMBUS 15, OHIO

In Canada: Daymond Co., Ltd., Chatham, Ont.

Export Sales: F. and J. Meyer, 115 Broad St., New York 4, U.S.A.

Use Yardley Twin-du-it for jet pumps and Sub-du-it for submersible pumps.

There is a material difference in plastic pipe

are known as Hickory Chickens, but their taste is neither like hickory nor chicken.

If any sponge hunter is ever so fortunate as to find more than he can eat at one time, he can keep them for a considerable time in a closed jar in the refrigerator. They can be dried, too, by exposure to a current of dry warm air. Later, soaked in water, they can be prepared with little loss of flavor.

For canning they should be thoroughly cleaned and placed in boiling water for three minutes, then into jars, and with a level teaspoonful of salt, pressure cooked for 40 minutes or 3 hours of hot water bath.

Freezing is the simplest of all. Slice the the mushrooms in half, soak in salt water for ten minutes, rinse, drain, pack in containers, and dash them to the freezer.

They may be sauteed, boiled, baked, or made into soups, omelets, or sauces. The veteran sponger prefers them sauteed. Wash, soak in cold, weak salt water for fifteen minutes, slice the larger pieces down the middle, sprinkle lightly with flour, and fry slowly in an open skillet in butter. Season sparingly, for care must be taken not to impair the heavenly, delicate flavor. Take them straight—you won't want anything with them unless it might be a glass of ice-cold beer, or a filet.

A scholarly and thoughtful man once said of the morel: "The morel is truly the food of the Gods. It is their exclusive food and it grows in the Elysian Fields in plenty; morels are rare among us mortals for the Gods only reluctantly and rarely bestow their blessings on man. We must be content with the crumbs from the tables of the Gods."

THE AUTHOR: Art Conrad is Director of Grounds, Miami University, Oxford, Ohio, and an avid student of everything that grows. He has made a life-long study of botany and horticulture. His special hobby is the botanical gardens at Miami University, one of the finest in the Midwest. He served for a time with the U.S. Forest Service and is a member of a number of landscape organizations. His photographs have appeared in many class magazines.

WET GRAIN?

...The Answer To Your Problem Is

BS&B's "IN-STORAGE" DRYING SYSTEM!

Tests show that it is now possible to banish forever that age-old problem of how to successfully store wet grain without fear of spoilage, over-drying or excessive cost! No other type of system or combination of equipment can give you all these advantages:

1. **LOW COST.** Compare the cost of other equipment which gives you drying AND storage with BS&B's system of drying IN storage. With the BS&B system, you can do the complete drying job for about 2½c per bu., or less!
2. **GRAIN HANDLED ONLY ONCE — FIELD TO BIN.** With the BS&B system you fill your bins, dry the grain, maintain condition and store — ready for use or market with no further handling!
3. **AUTOMATIC HUMIDITY CONTROL.** Just set it . . . BS&B system requires no special attention, knowledge or training to operate.
4. **MAINTAINS GRAIN QUALITY.** Low, even drying temperature maintains high germination and food value with minimum shrinkage. Dries uniformly as Nature does in the field.
5. **SIZES TO FIT ALL REQUIREMENTS.** BS&B systems are equally efficient for 1,000 or 100,000 bu. Select the size system you need.

For further information and FREE MANUAL, see your BS&B Dealer, or write to . . .

BLACK, SIVALLS & BRYSON, INC.

Department 8EA3
7500 East 12th Street • Kansas City 26, Mo.

BS&B — EFFICIENCY RELIABILITY — ANOTHER EXAMPLE OF PRODUCT LEADERSHIP

Cut Feeding costs up to 40%

If you feed Hogs, Cattle, Sheep or Poultry you need a BELL "Modern" Hammer-Mill to get the most profit out of farming.

GRIND YOUR OWN GRAIN & ROUGHAGES

Cut feeding costs and increase the weight of stock animals by feeding home-grown, GROUND shelled or ear corn, with or without shucks, oats, wheat, alfalfa, clover and soy bean hay. A BELL "Modern" Hammer-Mill will do it for as little as ¾ of a cent per hundred pounds. 1000 pounds of properly ground feed often produce as much Milk or Meat as 1250 lbs. of unground feed, thus the highest possible Feeding Value for growing pigs, and other stock animals is obtained at the lowest cost per pound of increased weight.

SAVE MONEY ON GRINDING COSTS!

BELL HAMMER-MILLS are made for ELECTRIC or ENGINE POWER, in 2 Universal, Low Cost Sizes. Capacities up to a ton of shelled corn thru a ¼" screen, or 1400 lbs. of ear corn thru a ⅜" screen, per hour. Write today for full information.

BELL'S *NEW MODERN* **HAMMER-MILLS**

Send for Special Illustrated Folder and Prices today.

THE C.S. BELL CO. *Mfrs.*
Dept. F. **HILLSBORO, OHIO.**
CORN SHELLERS HAMMER-MILLS FEED MIXERS

WITCHWEED GAINS A BEACHHEAD

(*Continued from page* 71)

void of root hairs, as it gets its full sustenance from the host plant. The underground part of the stem has a series of scales on it, placed similarly to the leaves above ground. Between ground-level and the third node above ground the stem gradually changes from round to square.

Another peculiarity of this plant is that the roots of certain crops, like soybeans, cowpeas, sunflowers, snap beans, flax, castor beans, and peanuts, have the faculty of making the Witchweed seed sprout, but its plants can't live on them and they die. Therefore these catch crops are used in rotations to get soil populations of Witchweed seed down.

In Africa, where the pest seems indigenous, they have found certain native sorghums to have a rather high degree of resistance to Witchweed. And that is a promising direction of their research. But there, as here, they have found corn, maize of the New World, to have no resistance to it at all. Ed L. Robinson, agronomist, in charge of the USDA-State cooperative Wichweed experiment station at Whiteville, N. C., tells me the past season he tried out 191 kinds, crosses, and hybrids of corn in badly infested fields and none of them showed the slightest resistance to Witchweed. Being native to the New World, corn alone of the grass-like plants seems to have developed no tolerance at all for this Old World pest. I asked County Agent O. P. Owens of Lumberton just how bad Witchweed was. He said, "Well, you just don't make any corn where you have it bad."

I understand in Africa they have done a lot of work on rotations, catch crops and the selection and development of resistant varieties of affected crops. That has been their main approach, since chemicals are expensive, hard to get, and largely out of reach of practical farm application there, even if they did prove effective. So here, at Whiteville, Mr. Robinson has extensive work under way with chemical control too, in addition to every other lead he can follow in trying to solve this Witchweed thing. At this early stage, after only one year of work, he can say that some chemical treatments show promise, though nothing is conclusive yet. Another fascinating approach is this; they have found, among 30 chemical forms of sugar, one (d-xyloketose) that causes rather "spectacular" germination activity of Witchweed seed in the laboratory. But Mr. Robinson tells me it is too unstable for field use yet. However, the fact that it shows laboratory promise might prove to be a valuable lead. For, surely, if a practical substance could be found that would induce sprouting of the seed, as now only the roots of the host plants do, it could conceivably lead to the eradication of this pest from an infested field.

Rotations and catch crops play a big part in living with this pest in the Old World. Soybeans, resistant

SWIMMING POOL "Build It Yourself" KITS

Finest Quality

Equipment - Chemicals - Paints - Supplies

"Swim to Keep Cool"

GARDEN STATE SWIMMING POOL & SUPPLY CO. T.F.
324 Main St., N. J. Rt. 24 — Madison N. J.

Send me free catalog. I have a pool ☐

NAME .....

R.F.D. .....

TOWN ..... STATE .....

TORNADO in Milk Tank CUTS CLEANING Time!

The girl above, with a touch of her fingers, controls a tornado . . . an automatic, *cleansing* tornado in a farm milk tank. Simply turning a control knob starts Zero's Spatter-Spray washing up for you. This exciting new labor-saver is attracting national attention.

Exactly the same design features that have always made Zero's round vacuum tank easier to *brush* clean make it possible today to wash *automatically*. It's a logical development of Zero's Super Strainer, direct cow-to-tank hook-up, and other Zero labor-savers.

Mechanically, it's simple. The variable speed motor turns the agitator at low speed during cooling, at a faster speed for butterfat testing. When the tank is empty the agitator spins at top speed . . . to wash, rinse and sanitize.

Zero offers you a tank with a future. Send post card today for complete information.

ZERO Sales Corporation
679-C Duncan Ave., Washington, Mo.

First Choice of Mechanics Everywhere . . .

HANSON TESTERS

are Second to None!

VACUUM-FUEL PUMP TESTER
4-color dial reads to 30" of vacuum . . . 7 lbs. of pressure.

COMPRESSION TESTERS
Large dials calibrated to 250 pounds to test all engines.
Standard . . . stem adapts 13" to reach back cylinders.
Deluxe . . . pistol grip houses extra gauge and valves.

STARTER CURRENT INDICATOR
V-shaped bracket on back fits every battery cable.

BATTERY CELL TESTER
With adjustable leg to fit all 6 and 12 volt batteries.

POWER TIMING LIGHTS
Long-lasting accuracy and brilliant white light. No moving parts. For 6, 12 and 24 volt systems.
Model 9 . . . rugged plastic design, molded pistol grip. Powered from 110 volt A.C. line.
Deluxe . . . all chrome case, trigger switch, plug-in bulb. Powered from car battery.

MOTOR ANALYZING SET
A complete "package job." 7 top quality Hanson Units in handy carrying case. Instruction manual included.

4-UNIT MOTOR TESTER WITH STAND $252.95

ALL 25 HANSON MODELS ARE TOP QUALITY, FULLY GUARANTEED AND COME COMPLETE WITH EASY-TO-FOLLOW INSTRUCTIONS.

HARVEY E. HANSON CO.
173 W. COMMERCIAL STREET

FOR FREE LITERATURE

HARVEY E. HANSON CO.
173 W. COMMERCIAL STREET
PAW PAW, MICHIGAN

Send me free literature covering basic auto testing equipment.

Name_____

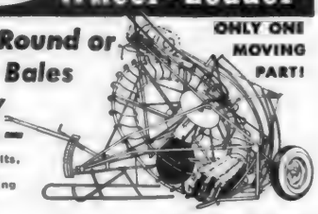
Address_____

City_____ State_____

RICHARDSON Wheel-Loader

Loads Round or Square Bales on any Terrain—

ONLY ONE MOVING PART!



No chains, belts, engine or hydraulic. Nothing to get out of adjustment!

Large, ground driven wheel delivers bales within easy reach of operator. Wide throat automatically positions bales for pick-up. Even loosely tied bales loaded without damage. Make this lifetime investment in lower labor costs.

RUDY HOFFMAN, Herrick, S. Dak., says as far as he's concerned, the WHEEL-LOADER is the only loader made. "I loaded 30,000 bales by the first of August 1957 and have 60 days of loading to go. I like the loader." Write for free literature.

WRITE: RICHARDSON Mfg. Co., Cowker City, Kans.

Please send complete details to:

NAME .....

ADDRESS .....

CITY..... STATE.....

Q-1

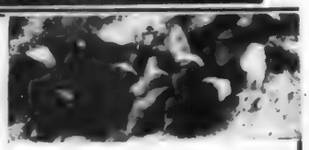
VETERINARY PRODUCTS DIRECT to YOU

All the latest effective treatments employed by leading veterinarians and herdsmen. *Discounts available on quantity shipments.*

Write today for your FREE Veterinary Catalog.

ANCHOR SERUM CO.
of INDIANA, INC.
INDIANAPOLIS 6, INDIANA

FERNDALE FARMS



PURE-BRED HAMPSHIRE HOGS AND ABERDEEN-ANGUS CATTLE

BOARS AND GILTS FOR SALE AT ALL TIMES

Visitors always Welcome

Breeding stock available at all times

FERNDALE FARMS

Arthur B. Evans, Box 50 - - - Cedarville, Ohio
One of the oldest and Largest Herds in America

NEWEST IN CREEP FEEDING
PAX PIG PALACE

. . . gives you revolutionary, round design—feeds 60 pigs. Exclusive patented Cone-over-Cone Agitators. Made of heavy gauge galvanized steel, hardwood platform and skids. Platform 50" x 50", overall height 39¾". Start your pigs earlier on solid feeds—insure faster gains.

PIG PALACE 5 bu. capacity.

PAX STEEL PRODUCTS, INC.
Dept. F-700 Coldwater, Ohio

Manufacturers of a full line of feeding and watering equipment. Also distributed from plants at East Moline, Ill., Kansas City, Mo., & Sioux Falls, S.D.

SENSATIONAL GARDEN TRACTOR

HOES between plants and rows, including strawberries. Eliminates hand hoeing. Nothing else like this. Patent 2742840. Also tills. Fantastic offer to first few inquiries.

AUTO HOE
DePere 76 Wisconsin

sorghums, sweet potatoes, and peanuts are used in the rotation. And catch-crops, like thickly sown Sudan grass are also used. By very heavy seeding many susceptible roots are formed. These come close enough to the bulk of the Witchweed to induce them to sprout and grow. Then before any of the weed has made seed, the crop is turned under as a cover crop. Thus the weed seed population on a field can be greatly reduced. But this rotation and catch-crop business has to be kept up, for it's never 100 percent perfect. The few seeds that are left soon sprout when a susceptible crop comes there again and their abundant seeding habit soon has the soil heavily reinfested.

In the Old World the range of this plant has been principally between the latitudes of 30°N. and 30°S. However, the outbreak in this country is between 34° and 35° N. latitude. So just what will be its geographical limitations here in the New World with new climate, rainfall, and environment remains to be seen. So far here it has been found mainly on the lighter sandy types of soil. But the past summer it thrived perfectly at Whiteville in heavy black soils brought in from Iowa and Ohio, and germinated but didn't mature on heavy clays brought in from the Mississippi delta. It did well on the heaviest soils of the Carolinas in that test.

Soil temperature seems to have rather great effect upon its germination and growth. In South Africa they get no germination up to 60° Fahrenheit soil temperature, low germination up to 68°, and optimum germination at soil temperatures above 86°. At Whiteville there was practically no Witchweed germination up to 60°. But it started after that and was heavy above 70° Fahrenheit.

We naturally wonder, as to temperatures, how does our Corn Belt fare?

Well, if Witchweed behaves there as it does in Corn Belt soils imported to Whiteville, those folks had better look out!

Let's look at some comparative soil temperatures. At Potchefstrom, South Africa, the average July soil temperature is 84.2°. At Urbana, Ill., it is 78.2°; Lincoln, Nebr., 86.9°; Davis, Cal., 86.6°; Pendleton, Oregon, 84.6°; New Haven, Conn., 81.2°; East Lansing, Mich., 75°; Fort Collins, Colo., 71.4°; Brookings, S. Dak., 76.4°; Blacksburg, Va., 76.4°; Auburn, Ala., 86.5°; and Temple, Texas, 93.7°.

Some control measures have been implied in the above discussion. Briefly, they are: 1. Cultural measures; 2. Chemical methods; 3. Control of movement; 4. Sanitary methods.

First step is to know where the pest is present. And for determining this, all agencies and individuals in the country having anything to do with agriculture are asked to help spot infestations. It is easily identified. At blooming time, this is easy. And it blooms all summer, or as long as its host plant lives.

CAUTION! Never send a suspected plant to your county agent nor to anyone

NEW! Lower Priced TAG-EZE Cattle Markers

Applied in 30 Seconds!

$12.60 PER DOZEN F.O.B. Newport, Ky.

- Heavy Brass Tag
- Bright finish twisted link welded chain
- Extra-heavy "S" hook fastener

Tag Size 2¾" x 2¼"

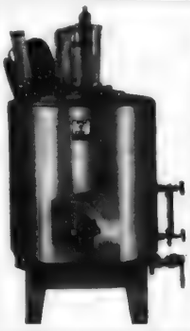
Plier $1.00 Each

HASCO 133

Free Catalog listing complete line. Plastic and aluminum markers. Plain and colored Cattle Ear Tags. Livestock supplies.

Est. 1902 NATIONAL BAND & TAG CO. Est. 1902

P. O. Box 6-254, Newport, Ky.



VAT PASTEURIZER

(Meets all Local Health Codes and U. S. Public Health Service Requirements).

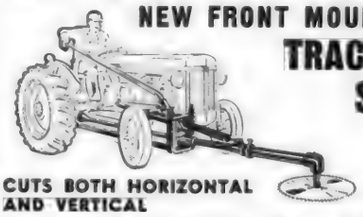
Available for direct steam from 25-125 gals. sizes.

Electrically Heated 25-35-50 gals. sizes.

VULCAN-HART MFG. CO.
2006 North Western Parkway
Louisville 3, Kentucky

Clear Brush, Fell Trees WHILE YOU RIDE!

NEW FRONT MOUNTED TRACTOR SAW



CUTS BOTH HORIZONTAL AND VERTICAL

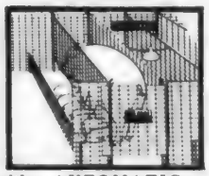
Operator controls Saw from Tractor Seat. Cuts Brush at 2 M. P. M. . . . Trims Hedge . . . Fells and Bucks up to 24-in. Trees. Tractor Power makes Sawing Faster and Easier. Fits most Popular Tractors.

Send Postcard Today for FREE FOLDER and Prices.

BELSAW IMPLEMENT CO., 4018 Field Bldg., Kansas City 11, Mo.

SAVE 2 ADDITIONAL PIGS PER LITTER

Walsh FARROWING STALLS



• Keep sow from crushing baby pigs. Modern, sanitary, all steel. Sections lock together. No bolts. Erect in less than 30 minutes. Fully adjustable. Cost less than rough lumber.

Now available with AUTOMATIC WATERER AND CREEP FEEDER

Write for FREE folder, prices.

WALSH MFG. COMPANY, Charles City, Iowa

HARDY GRAFTED NUT TREES

"Grow a tree bank while you build a soil bank"

The blight resistant Chinese Chestnut is really "ringing the bell" as an ornamental and orchard crop. Hardy English; thin shelled Black Walnuts; Filberts-Hazels-hybrids. Delicious Persimmons. Did you know you can get rich without plowing with "tree crops"? Yep!! Don't miss writing for amazing list.

NUT TREE NURSERIES
Downingtown, Pa. • Box "Y"

SNOWCO ... always first with advanced, time-saving, work-saving methods

presents the NEW

FEED-O-MIXER

Self Unloading Wagon

The new patented FEED-O-MIXER, a step forward from the famous Snowco Feed-O-Matic, is the first positive on-the-farm feeder-mixer wagon. It is GUARANTEED to mix combinations of grain, ground grain and prepared feeds uniformly.

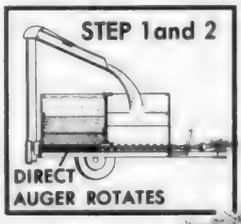
The Feed-O-Mixer is also ideal for treating large quantities of seed grain—for hauling seed grain to drill—for hauling grain from combine to bin.

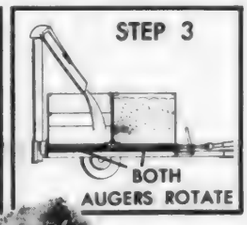
Featuring advanced design, construction and performance, the FEED-O-MIXER has an all-steel box and precision made augers for a long life of trouble-free service.

Ⓐ EXTENDED SPOUT Ⓑ DIRECT AUGER
Ⓒ MIXING BOARD Ⓓ GRAIN GUARD
Ⓔ CLUTCH CONTROLLED FLOATING AUGER
Ⓕ CLUTCH GUARD
Ⓖ CLUTCH LEVER CONTROLS THE FLOATING AUGER IN THE FRONT COMPARTMENT

Here's how simple and easy it is to mix 80 bushels of feed with just one trip from storage bin to feed bin or feeder

1. Load the various feeds in the rear compartment of the Feed-O-Mixer.
2. Direct the discharge auger spout to the front compartment. Disengage front auger clutch. Start tractor PTO and move grain from rear to front compartment.
3. Direct discharge auger spout to rear compartment. Engage front auger clutch and move grain to rear.
4. Repeat if necessary. Usually steps 2 and 3 are all that are necessary to thoroughly mix the combination.
5. For an 80 bu. load, fill front compartment with feed to be mixed, then move to the feed bin.
6. Unload rear compartment of mixed feed into feed bin.
7. Mix second batch of feed in front compartment in reverse order, step 3 and 2.





NEW SNOWCO Portable

BALE ELEVATOR

Handles bales up, down, horizontally; can be used as mow conveyor.

Sturdily built for years of service—1" O.D. 18 gauge wall steel tubing; 18 gauge steel chain bed channel; permanently lubricated ball bearings. Operates with electric motor or gasoline engine.

Three lengths—16', 20', 24' complete with motor carrier and belt; 15' extension available for each size. Optional transport also available.

SNOWCO

BALE LOADER

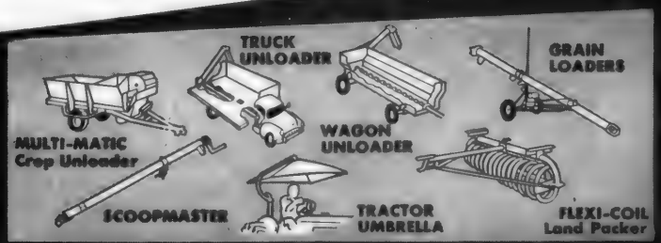
Users Report It Replaces 3 Men

Truck or tractor operator can load bales alone with the Bale Loader.

It automatically picks up all bales, round or square, any weight, dropped at any angle, and drops them in truck, wagon or hayrack.

Telescoping tow bar permits loading front, rear or center. Operates on any terrain.

Loader attaches to truck or wagon in 20 seconds; trails easily on the road. Built for years of trouble-free service.



SNOWCO Crop Handling Equipment sold throughout the United States and Canada

Send coupon for free literature

THE SNOW CORP. 5022 No. 30th, Omaha, Nebr.

Please rush free information on

___ Feed-O-Mixer
___ Bale Elevator
___ Bale Loader
___ Multi-Matic
___ Grain Loaders
___ Scoopmaster
___ Wagon Unloader
___ Truck Unloader
___ Tractor Umbrella
___ Flexi-Coil Land Packer

Name _____

Address or RR _____

City _____ State _____

WORLD-FAMOUS

ROTO-SPEED

ROTARY

CUTTERS

NOW CUTTING AND CLEARING MILLIONS OF ACRES OF FARMLAND ALL OVER AMERICA

stalks
pastures
stubble
prunings
undergrowth

If you've ever seen a Roto-Speed on the job, you know what a whirlwind it is. Outside of your tractor, it is the most versatile farm implement of them all. Drop us a card for complete information and the name of your nearest dealer. He'll be glad to show you what the ROTO-SPEED can do.

LILLISTON IMPLEMENT COMPANY

ALBANY, GEORGIA • Factory Branches: Waco, Texas • Modesto, California

How You Can Double or Triple Your Cash-Profit on Legumes

by Myron E. Lusk, President, Kalo Inoculant Company

Quincy, Ill. — Right here in Illinois, one farmer recently produced a 25% increase in his soybean yield merely by inoculating his seed! The cost of the inoculant averaged only 20c an acre — yet he produced a phenomenal increase of 8.5 bushels *more* soybeans per acre *just by inoculation*. That's why we say here at KALO, "you can often double or triple your *cash-profit* just by inoculating your seed!"

How About You?

You can make these extra profits too. Here at KALO, we have a new line of "cash-doubler" inoculants that produce outstanding results. They are available at most farm stores. The price is unusually low. Enough KALO legume inoculant to treat 5 bushels of soybeans costs about 65c!

A Personal Offer

I want you to try our KALO "cash-doubler" legume inoculants on *your* farm. If you will clip the coupon below and mail it to me with your name and address, I will send you, *absolutely free*, a one bushel size can of KALO for clover and alfalfa seed treatment. Send the coupon today, won't you?

KALO Inoculant Company, Quincy, Illinois

Name _____

Address _____

Town _____ County _____

I farm over 25 acres of legumes annually.

Farm Shop
by Leo Roethe

Here are two items of special interest to all stockmen and dairymen.

Yellow neck strap with large, black, non-fade numerals on both sides of neck. Tough, pliable material; rot and crack-proof. 44-inch strap with heavy buckle, 95¢ each; $10.95 per dozen. State number sequence desired.

New Tenite Cattle identity tag with 40-inch nickel-steel neck chain. Jumbo numbers on bright background. Visible from a distance, non-fading. When ordering, specify numbers desired 1 to 999). State color (red, yellow, blue or white). Tag only, 65¢. Tag and chain, $1.15; per dozen, $11.95.

Both the above items manufactured in our shops.

Over 5,000 Farm Items

NASCO catalog lists complete stock of farming supplies — all at a saving to you... many unusual products not available in stores.

Write for your *free copy* of Catalog No. 44.

NASCO Dept. 42 FORT ATKINSON, WISCONSIN

else. Notify your county agent, and let him come there. This thing is too easily spread to risk sending a specimen anywhere away from the infested spot.

Cultural Methods have to do with crop rotations and the planting of trap or catch crops that encourage germination of the seed, but on which the pest can't grow. Care must be taken to keep crabgrass or other susceptible plants out of the catch crops. Cover crops, like Sudan grass, seeded heavy and turned under before the pest makes seed, are used a lot in Africa to reduce the seed population in the soil.

Chemical Methods of control show promise and extensive work in this country was started on this in 1957. Weed-killers proved effective against Witchweed in Africa, where applied, of course, before the plants seeded. The ordinary pre-emergence sprays have not proved effective against this pest, nor have the post-emergence ones, except in the flowering stage. Chemicals may be used along with other methods, like on crabgrass that comes in with resistant crops. Herbicides are used on uncultivated fields, ditch-banks, and fencerows where Witchweed is present, and before it reaches the seeding stage. Its having bright red flowers is a break in our favor in all of this. For they herald its location, and tell of the dangerous seeding time immediately ahead.

Control of Movement of anything that might carry infested soil particles from infested farms is of major importance in preventing the further spread of Witchweed. This includes bulbs, corms, tubers, rhizomes, and all root crops; transplants, including vegetable and tobacco plants, nursery stock, and farm products such as seed cotton, tobacco, peanuts, corn, soybeans, and small grain. Also hay, straw, used crates, boxes and bags, farm machinery, equipment, vehicles, and road-building and construction equipment.

Sanitary Methods, too, are important in this fight against Witchweed. Many objects, like most of those listed above, of necessity have to be moved. But cleaning, washing and disinfecting, properly done, will usually make it safe to move them from infested premises. However, the safe movement of things like straw, hay, transplants, etc., might have to await research on methods as to just how they might be made safe for transport to clean areas. These problems are now being considered by the authorities and representatives of the infested areas, as practical quarantine measures are being worked out.

Naturally research is largely lacking in this country on this new problem. Remember, it was only recognized in this country in August 1956. Amazing progress has been made in the scant one year that Ed Robinson and his aids have been at work at the Whiteville Station. There we have the full cooperation of USDA, Clemson College in South Carolina, and North Carolina State College forces. There a complete anatomical study of the seed

and plant in all stages is being made. Other major lines of investigation under way have to do with chemical stimulants, soil sterilants, fumigants, herbicides, assay methods to determine viability of Witchweed seeds after various chemical treatments, seed detection methods in soil samples and other materials, catch crops, crop rotations, resistant lines of host plants, control of host weeds, host-range studies, soil types, and long range soil and climate studies as they apply to Witchweed.

The Outlook for a quick or fairly early victory over Witchweed is not bright. For here we have hold of an insidious thing. Look at it!

An extreme case noted in Africa showed 20 Witchweed seedlings attached to a quarter of an inch of corn root. One plant has been known to produce as many as a half-million seed. Seed have been found as plentiful as 3 million to the square yard of soil. They are viable there in the soil for about a generation of man. And for one of those seeds to sprout, the root of a susceptible plant has to come to within one tenth of an inch of it.

So there you are! A job for sure. Our scientists have whipped other tough problems. We have faith they will eventually whip this one. But in the meantime, this pest is bound to leave a lot of wreckage.

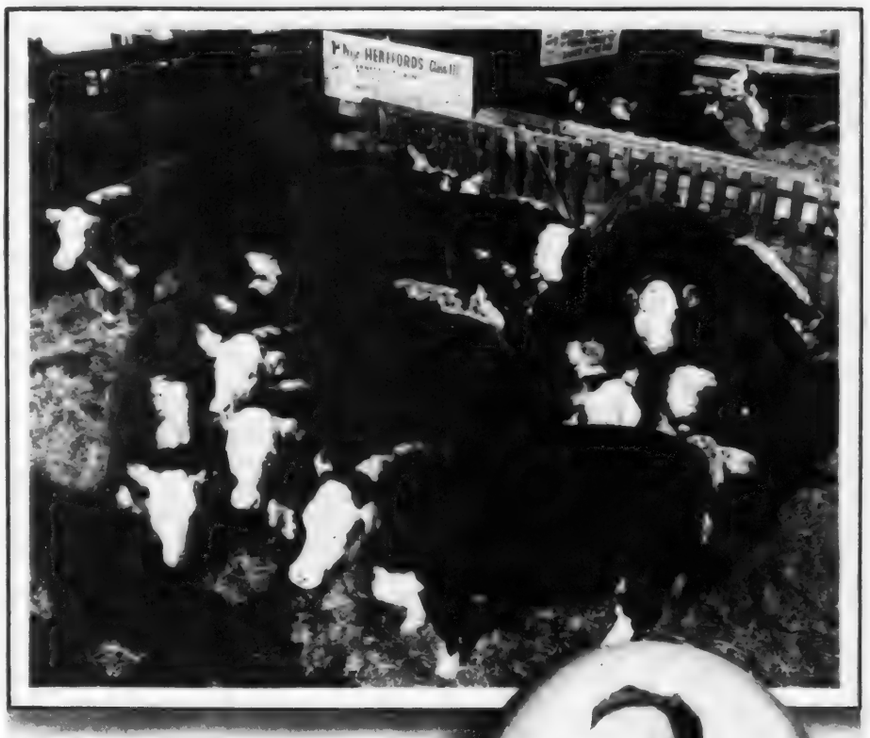
Of the susceptible crops, corn is by far the most important in this country. The small grains, although susceptible, grow when soil temperatures are too low for Witchweed seed to germinate and mature. So only on volunteer summer grain could it be found, and that's of no economic importance other than building up more soil infestations of the pest's seed. Rice, too, is a susceptible plant. But since we grow it only in water, and Witchweed will not germinate in saturated or water-logged soils, it will be of no economic consequence there either. So it is with corn, the nation's number one crop, where the main danger from Witchweed lies.

THE AUTHOR: J. M. Eleazer, information specialist, Clemson Extension Service, has been named "Man of the Year in Service to South Carolina Agriculture for 1957" by the *Progressive Farmer* magazine.

In announcing his selection, the magazine says: "Speeding research information from laboratory and test plot to the man on the land is one of the most vital agricultural tasks, and no man has done a better job of this than Mr. Eleazer. As an eloquent champion of a new and better day in southern agriculture—and as a proud chronicler of its farming past—he richly deserves a place among South Carolina's great."

He is the author of two books, "A Dutch Fork Farm Boy," which is a compilation of tales of his boyhood, and "Our Land Is Our Life," which is used as a textbook in some schools of the state. He is a Field Editor for FARM QUARTERLY, serving the South.

ESHELMAN TRACTORS
LOW AS $99
Plows • Cultivates • Saws • Cuts • Dozer • Harrows Hauls • Snow-Plow • Rolls
Eshelman Tractors, Tillers, Riding Rotary Mowers for Better Lawns and Gardens. Advertised in GOOD HOUSEKEEPING. Thousands of satisfied users. Write for Free Literature.
ILLUS. MODEL $499.00
Shipping Points: BALTIMORE • CHICAGO • RENO
ESHELMAN TRACTORS
LOW AS $99
For better Lawns and Gardens investigate Eshelman Riding Rotary Mowers, Tillers, Tractors. Advertised in GOOD HOUSEKEEPING. Thousands of Satisfied Users. Write for Free Literature.
Dept. 330, ESHELMAN
Baltimore 2, Md.
Riding Mower From $275.00
Shipping Points: BALTIMORE • CHICAGO • RENO



"This year, as in the past I harvested about 9,000 bushels of Genuine Pfister Hybrid corn to feed my cattle. Genuine Pfister is the only hybrid seed corn I plant and helped me win my champion award in the Heavyweight Hereford Class at the International Livestock Exhibition for the second year in a row. When I ran out of P.A.G. 303 I bought some more of this same hybrid to finish out all my cattle. My two brothers, who farm about 1300 acres also will plant only P.A.G. Hybrids".

Ernest Turin

Ida Grove, Iowa

1st PRIZE HEREFORDS CLASS 171

Man, that's corn

P.A.G. PFISTER ASSOCIATED GROWERS, INC.

PFISTER ASSOCIATED GROWERS, INC.

AURORA, ILLINOIS

PLANT P.A.G. HYBRIDS FOR MORE CORN PROFIT

Tree Talk

by

Will Rusch

Want your timber stand to grow to maturity ... to return you the well-deserved cash that comes with sound forest management?

The answer to this question is obvious—you're in business for profit, whether you operate a department store or a Tree Farm. Well, there are two absolutely essential precautions that must be taken to help your timber grow to maturity—and profit.

First, you should protect your stand against fire. This calls for the maintenance of fire lanes through the woods and along highways and the strategic placement of fire-fighting equipment. For smaller woods, it is mainly a matter of keeping grass and brush fires from spreading to the timbered acres. Fields adjacent to the woods should never be burned when the wind is blowing toward the timber.

Second, and equally important, is protection of timber from livestock. I don't know why it is, but livestock love to browse on tender young shoots and always seem to work on the most valuable stands first. It you want to see your trees thrive and grow to maturity, fencing out livestock is a "must."

It was just a year ago at this time that farmer Fred Suhre of Brookville, Ind., picked up an extra $500 merely by cutting wood in his spare hours. Using a McCulloch chain saw, Mr. Suhre cut his own timber, hauled the logs to mill and netted a mighty handsome return with only a few weeks of actual cutting. In addition, he cut enough firewood for himself and a neighbor and cleared five acres of cropland.

Owner of a typical Indiana farm, Mr. Suhre says he likes the dependability, convenience and neatness of his McCulloch chain saw, which more than paid for itself after just a few weeks of use. Of the 123 acres on his farm, 85 are tillable and 35 are devoted to such trees as oak, poplar, elm and walnut.

His 125 colonies of honey bees provide an interesting musical accompaniment to his fast-cutting McCulloch.

You know, in these days of inflated prices and lower margins, it's gratifying to know that the price tag on one item, at least, hasn't been going up. On the contrary, it now costs *less* than ever before to own a shiny, new McCulloch chain saw.

Believe it or not, prices for the McCulloch Mac 35 start at just $165! And this is no skin-and-bones model, either, but a full-sized professional-quality chain saw with such McCulloch features as automatic rewind starter, automatic clutch, aircraft-type carburetor and waterproof ignition.

Once you visit your nearest McCulloch dealer for a free demonstration of the Mac 35 in action, you'll be pleasantly surprised that $165 can buy so much real quality today.

For the complete lowdown on the Mac 35 as well as all the other fine saws in McCulloch's 1958 line, just write to me for free literature. Address your card to Will Rusch, McCulloch Tree Topics Bureau, 6101 W. Century Blvd., Los Angeles 45, Calif. S-7031

FARM BOYS IN BASEBALL

(*Continued from page 75*)

players are the "hired hands." We must not forget the "bull pen"—more important these days than ever before.

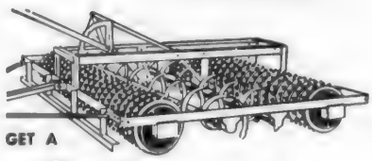
You just couldn't leave "Dizzy" Dean out of any story about farm boys in baseball. Dean has his own way of talking and I'm not sure just what section of the country his vernacular represents. Actually when you have played ball for years and associated with men from all parts of the United States you become quite adept at associating dialects with locations. There was a time when I could tell you where a ballplayer hailed from after hearing him talk for five minutes or so. Dean, however, was something of an enigma. Diz gives his birthplace as Lucas, Arkansas, which doubtless is correct. Later the Deans migrated to Holdenville, Oklahoma. Diz now has a ranch in Texas. The Great One has several twangs, drawls and manners of speech. I must say all are appealing—although not quite in keeping with the rules of grammar and syntax.

There was the time Diz had his famous controversy with a disciple of diction and grammar who claimed Diz was butchering the English language on his baseball broadcasts. The professor said that with his constant use of "ain't" Diz was a bad influence on youngsters, to which Diz replied a la Will Rogers, "There's a lotta folks who ain't sayin' ain't who ain't eatin'." No more was heard from the grammarians.

Let's live a moment with Dizzy, for perhaps Jerome Hanna Dean is as fine an example of the country boy making good in baseball as any we know.

The Dean family was, as rumor has it, a migratory clan, which is why it's so difficult to get a fix on their actual homesite. A lot of cotton was picked by the Deans, and to that laborious chore Dizzy credits his speed, sinew, and stamina. Certainly no big league pitcher had those assets in more abundance than Diz. He could pitch often and pitch well; a rubber arm. Beyond his physical assets, Dean possessed wide philisophical horizons as broad as the lands he travelled, as free and as airy as the creatures of his meadows and thickets. Unfettered, uninhibited, Diz was a breath of real fresh life in baseball. The Huck Finn type never bound by convention, and a virile young man who followed none but his own dictates. Dean is the example of what the farm, the country, can give to baseball, can give to any business. I am not speaking of Dean's eccentricity. I am speaking of Dizzy's raw-hide sinew; the whipcord muscles which enabled him to "fog 'em through there"; his recuperative powers, the ability to come back quickly after a tough game; and as much as anything else his mental approaches to the game of baseball. His was a mind which never knew the confinement of city streets and playgrounds, nor the limits of

Good Farming PAYS!



GET A

New Western Bear Cat

SEED BED MAKER

Once over any plowed field (twice over sod) with the three-way action of the rugged Western Bear Cat and you have a clean, mellow firm seed bed. Front leveling bar levels clods or high sod. Sprocket packer pulverizes and firms. Spring teeth clean out new growing weeds. Then rear packer and mulcher again pulverizes and firms. Leaves ground with surface mulch—the best seed bed possible. Others may imitate, but there's only one that's really a Bear Cat. Write today for free literature.

NEW Bear Cat BURR MILL

Outstanding in burr mill performance and construction. Precision machine-ground burrs of Ni-Hard alloy, magnet protected. Large capacity. Trailer mounted with power take-off.

No. 4A

Trailer Mounted for Power Take-off Has traveling feed table and is especially designed for grinding or chopping larger quantities of loose or baled hay and roughage of any kind. Furnished either with or without Trailer Mount and Power Take-off. Both cutter knives and heavy swing hammers—it grinds any feed, green, wet or dry, snapped or ear corn, roughage bundles or baled flakes, with ordinary farm tractor — and no monkey business. Get full information on real honest-to-goodness grinding outfits. Write today.

Western Land Roller Co., Dept. FQ-45
Hastings, Nebraska — Manufacturers

"They CAN take it from you!"

That is the subject of a story in the Summer issue of The Farm Quarterly. It tells how the law of eminent domain can take property from you for public improvement or necessity.

This may be for public highways—toll roads—pipe lines—high tension lines—airports—public housing projects—dams—lakes, etc.

You are entitled to "just compensation", but many owners do not realize their rights. Few appreciate the inconveniences or the damages to their property. They settle for less than they should.

If your farm lies in the path of one of these improvements—DON'T SIGN ANYTHING—but call on a Professional Rural Appraiser for advice. *He can save you money and trouble.* He will estimate the *immediate* and *future* effect on your property, and help you secure proper payment for the part taken.

Write today for list of Professional Rural Appraisers for your area. Then get in touch with one for consultation. No obligation, of course.

H. E. Stalcup, Secy.-Treas.
American Society of Farm Managers and Rural Appraisers
Box 67, Storm Lake, Iowa

adventure. He had the wide open, free mind of a youngster born in the country, next to nature. The Dean family may have been hard pressed when Diz was young, but even that taught Diz and his brother Paul early lessons in the battle for existence. I have always thought Diz looked upon hardship as a condition to be met, endured and licked if possible, rather than as an insurmountable barrier. Diz and his country cousins, other ballplayers of the same mold, are, I believe, a bit more rugged in their acceptance of adversity than their city counterparts.

Along with Dizzy Dean, the Cardinals boasted the runnin'est, slashin'est headlong plunger ever to hit the big time from the cane brakes, the real corn-bred boy, the wild Horse of the Osage, Pepper Martin.

It was Pep who rode the brake rods into the Cards' training camp one spring, his hair down on his neck like Bill Cody. Needing a shave—needing everything, money, a job, and a few hefty meals.

No more history is needed for Pepper Martin. He went on to fame as one of the great Gas House Gang. In the 1931 World Series against the Athletics, he stole bases, hit home runs (including one against me) and wound up the star of the series.

It was Martin and Dean, who as a practical joke, decided to redecorate the barber shop in a Philadelphia hotel. They paid a visit "downstairs" at rush hour. In loud voices they described how they would pull out this mirror, remove this chair, switch the manicure department upstairs. In five minutes they had the shop in an uproar, with the head barber calling the manager. Satisfied with the renovations in the barber shop, they attacked the dining room at seven p.m., equipped with paint pots, ladders, overalls and such. Up went the ladders over the heads of the select diners, and in no time chaos was served instead of meals.

In the mid-thirties, the fans in St. Louis gave Pepper Martin a day. 'Twas the greatest "day" and the most unique ever given a ballplayer. The gifts included livestock—pigs, cows, a pony. Also equipment, a tractor, and other farm implements. Martin simply and literally reaped a harvest.

Another Cardinal, a remarkable example of longevity, is the balding and

MEAT-MILK RED POLLS

Use naturally hornless Red Polls' dual, meat-milk producing abilities to make more profit. All mature Red Poll cows reported on AR test the last 10 years averaged 8,844 lbs. of 4.13% milk. Selected Red Polls milk well, up to 16,000 lbs. Red Poll steers gain fast, meet modern packer and consumer preferences for tender, flavorful, marbled red meat with least waste fat. FREE literature on request.

Send $2 for Red Poll Magazine for 1 year; $5, 3 years (only $1 for 1 year, $2.50, 3 yrs., if postmarked by March 31)

RED POLL CATTLE CLUB OF AMERICA
3275-Q1 Holdrege Street Lincoln 3, Nebraska

Now You Can PLANT the World's Strongest Fence!

BEAUTIFUL LIVING FENCE

of Stern's Multiflora Roses — Low in Cost —

SO DENSE NO PERSON OR ANIMAL CAN GET THROUGH!

BEAUTIFUL PROTECTION ALL YEAR! Use to reinforce present fences, or alone. NEEDS NO SUPPORT. Covered with roses each spring, sparkling foliage in summer, red berries all winter!

Here are the tough, hardy shrub roses that are perfect for hedges and farm fences! About 1/5 the price of wire fencing. No upkeep, no repairs, nothing to maintain. Beat man-made fences by a mile!

Plant 18" Apart—Will Be 3 to 4 Ft. Tall This Year!

Grow like wildfire in practically any soil. Soon so dense and thick they form a solid tangle that children, dogs, horses, sheep, even bulls can't get through! Shoot up so fast, sometimes *grow an inch a day!* Reach about 6 ft. at maturity, then gracefully arch down. Or keep any height you like by clipping once or twice a season. Once established, take care of themselves. Last a lifetime. Grow more beautiful and useful every year!

Recommended by U.S. Dept. of Agriculture and U.S. Soil Conservation Service

Found the one shrub best suited for use as a living fence. Forms barrier so strong, now being used to replace conventional guardrails on many state highways. Raises property values. Attracts song and game birds and other small game that cut down destructive insects and rodents. Helps conserve topsoil, cut winds. To quote an expert: "*You couldn't make a better investment than planting the fence that blossoms as the rose.*"

HARDY, FAST GROWING

FOR FARM

FOR GARDEN

Limited Quantity — Send Now! Order by Mail With Money-Back Guarantee

For a 3 to 4-ft. tall Living Fence THIS SUMMER plant *this spring.* Easy directions enclosed. Plant 1 ft. to 2 ft. apart for farm fence, 18" for garden hedge. (Use 25 plants for 40 ft. hedge; 50 for 75 ft.) *You must be delighted with results, or get free replacement or money back.*

FINE QUALITY HEAVY 15"-18" PLANTS
10-$2.50 • 25-$5 • 50-$9 • 100-$15
250-$30 • 500-$50 • 1000-$90
Send check or money order. All prices ppd.

FOR A BEAUTIFUL LIVING FENCE THIS SUMMER
ORDER BY MAIL TODAY!

STERN'S NURSERIES, Field 150, Geneva, New York

Yes. I want a strong, beautiful, carefree Living Fence of Roses! Please send me, at the proper planting time in my section, Stern's fine quality Multiflora Rose plants as indicated below:

☐ 10—$2.50 (for 15' hedge) ☐ 25—$5 (for 40' hedge) ☐ 50—$9 (for 75' hedge) ☐ 100—$15 (for 150' hedge)
☐ 250—$30 (for 375' hedge) ☐ 500—$50 (for 750' hedge) ☐ 1000—$90 (for 1500' hedge)

All prices postpaid

Check ☐ or Money Order ☐ enclosed for Total: $.....

I understand I must be delighted with results or I'll receive free replacement or my money back.

Name .....

Address .....

Stern's Nurseries FIELD 150 GENEVA, NEW YORK
Specialists in Rare and Choice Trees, Plants and Flowers

GET TOP CROP PROFITS!

Spread Your Fertilizer ACCURATELY

Over-application wastes fertilizer dollars. Under-application of fertilizer reduces crop yields. Only Ezee Flow has the "Can't-Be-Copied" features to enable you to spread your fertilizer uniformly and accurately . . . so your crops can make more money for you. And, only Ezee Flow *absolutely* guarantees this performance. See your dealer soon.

Remember, Ezee Flow is America's most complete line of fertilizer application equipment—there's a size and model for every size farm.

ONLY EZEE FLOW GIVES YOU THIS REMARKABLE GUARANTEE OF PERFORMANCE

Ezee Flow will spread ANY fertilizer in ANY condition in ANY* amount . . . uniformly and accurately . . . without clogging . . . or money back.

EZEE FLOW
Division Avco Dist. Corp.
Signed E. Duzzo
General Manager

*10 to 5,000 lbs. per acre

Write For Your Free Copy of the colorful, fully illustrated Ezee Flow Fertilizer and Seed Fact Folder.

EZEE FLOW® DIVISION AVCO DISTRIBUTING CORPORATION
Dept. FQ-3, 3428 N. Harlem Ave., Chicago 34, Ill.

Something NEW has been added

STONE'S Famous Economy Unit Now Features NEW Stronger Fastener

Stone's long famous solid brass identification tag and zinc-plated chain are now joined together with a stronger fastener that is much easier to open and operate. Its greater strength means longer life for the entire unit . . . and its curved throat holds tag in proper position at all times.

Write for FREE Catalog on other famous Stone products.

Tattoo Pliers • Ear Notchers • Cattle Leaders • Branding Irons • Nylon Dress Comb

STONE Manufacturing & Supply Co.

FQ-3

1212 Kansas Ave., Kansas City 27, Mo.

aging "Country" Slaughter, born 41 years ago at Roxboro, N.C., and still going strong.

Country boys have always been the butt of jokes, oral and practical. It was not uncommon to tell a green rookie spending his first night on a Pullman to hang his throwing arm in the hammock of the berth. Rookies have been sent to the manager to ask for the key to the pitchers' box. Back in the mid-twenties, the Yanks had a greenhand report to St. Petersburg. The youngster whose name I'll not mention, sat in a poker game with some of the veterans. Came eleven o'clock and the kid said, "I'll have to quit, I've gotta send out my laundry." One of the veterans cracked, "Oh, you don't have to bother with your laundry. You get a laundry check yet?" The rookie asked, "What's with the laundry check?" The older player said, "Oh, you get that off Miller Huggins. Just take your laundry to his room. He'll fix you up."

The kid took his laundry to Hug's room, knocked on the door and awoke the little manager. Imagine what Hug told that kid when the youngster said, "Give me a laundry check will ya', and send out my wash!"

I do recall one day when the city boy took one on the chin. I was with the New York Giants in 1917. We were in training at Marlin, Texas. We had a real raw city kid named Bill Lidal. He was out of New York, a gabby, positive guy whom we suspected of being a ribbon clerk from Macy's. He certainly was no pitcher.

After a week in Marlin some of the country boys framed him. Pol Perritt, Ferdie Schupp, Art Fletcher and a couple of others cornered Lidal in a conversation about hunting. "Sure," he said, "I hunt out on Long Island all the time."

"Snipe?" they asked.

"Shure, I'm a real snipe shooter!"

Said they, "You don't shoot 'em down here—you bag 'em!"

The gang rigged a midnight snipe hunt for Lidal. Told him about ten miles from Marlin some of the best snipe hunting in the world was possible. Lidal didn't know a snipe from a duck, and less about a snipe hunt. Late one night Perritt & Co. started out in an old tin Lizzie. Ten miles from town they equipped Lidal with a lantern and gunny sack and said, "Look Bill, we'll

REMOVE TROUBLESOME STONES!

With PIXTONE

The World's Finest STONEPICKER

Save labor, eliminate cause of many implement breakages, increase productivity of soil. Pixtone picks up, carries, dumps stones 1½" to 8" in diameter. Operated by one man with any 2-plow tractor. Clears up to 4 acres a day. Hundreds in use by farmers, landscape contractors, parks, etc.

Write or Phone for Literature

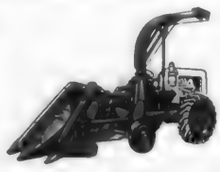
BRIDGEPORT IMPLEMENT WORKS, Inc.

Dept. D. Stratford, Conn.

"NEVER KNEW HOW A CHOPPER SHOULD WORK ...UNTIL I GOT A GEHL"

With Quick-Switch attachments, you can change over in minutes to chop any crop, from the shortest to the tallest. No matter how fast you chop . . . you can't clog a Gehl.

GEHL SPECIALIZES . . . OFFERS THE FULL



Self-Propelled With 2-Row

2-Speed PTO Blower

6-Foot Mower Bar

be the beaters. When you hear us beating the bushes and whistling, turn that lamp up and open the gunny sack. The light will attract the birds and we'll have snipe in the sack in no time."

Lidal heard the whistling and beating in short order. Soon it grew fainter and fainter. But no snipe. When he heard the chug-chug of the old auto taking off he realized he had been the victim of a fast one, ten miles from the hotel at midnight, holding a gunny sack and a lantern. To his credit he took it in good grace. He had to. A week later he was in New York.

In those days, and even through the following years, the country boy making his entrance into baseball had to endure the hazards of becoming wised up to city ways. It was often embarrassing, but nonetheless educational. In these days of TV and radio, auto, airplane, magazine and newspaper, the boys from the rural areas are as hep to wordly happenings as their city relatives. The farm boy has become emancipated. He hears the game of the day on radio, he sees the game of the week on TV. If he is very young he doubtless plays in the Little League or the Babe Ruth League. Later he plays American Legion baseball. Two examples of the new farm boys who came up this road to glory are the McDaniel brothers of Oklahoma.

The Saturday game between two hamlets in county fair atmosphere is no more. They say Carl Hubbel, the great left hander out of Meeker, Oklahoma, used to ride a mule 10 miles every Saturday to pitch a game. Today the power of three hundred horses probably would take Hub's son to a similar assignment. Big League baseball is no longer a mystery to country people. I have seen the day when Babe Ruth, playing an exhibition game in a town of five thousand population, would attract ten thousand customers who came in spring wagons, surreys and all manner of conveyances. Women in poke bonnets holding babies sat in wagons ringing center field. Those days are gone forever.

We have had fellows go from the city to the farm, such as Babe Herman, one of the first of the daffy Dodgers. Herman,

BUILT TO STAY IN THE WOODS

HERE is truly a farmer's saw — an easy start'n, fast cutt'n, rough'n ready saw that can spit out a steady stream of sawdust *day after day . . . week after week . . . month after month.* The Hoffco 88 out-cuts 'em . . . out-works 'em . . . out-lasts 'em! If you want a saw that's *ever faithful, never falters, starts out fast and stays in the woods all day long,* you want the Hoffco 88.

Designed and built to specifications for the professional woodsman, the Hoffco 88 incorporates these built-in features — double sprocket life, balanced centerline cutting, protected all-position carburetor and air filter, saw-chain bar tightener, and thumb-button chain oiler with large capacity oil reservoir. *This cool-running, big-bore, long-stroke, high-torque, fast-starting engine is the final answer to the direct-drive power problem.*

Big capacity saw — full 5 h.p. available with 16" to 36" bar and chain, or 15" to 18" bow bar and chain.

Contact your local dealer or write Hoffco, Dept. 88

Hoffco, inc. Richmond, Indiana

No wonder so many Gehl users feel this way. After wasting field time, unplugging lazy choppers, they get hard-headed and practical. They get Gehl Chop-All for uninterrupted capacity chopping. Watch any chopper, then watch a Gehl barrel it in. You'll like its easy-running, finer-cutting, and you'll like its Quick-Switch changeover to any forage crop. No wonder more farmers own Gehl than any other independent brand—they've found out how a chopper should really work. Get the Gehl deal first and you'll end up with a Chop-All.

GEHL
Chop-All
PRONOUNCE IT "GALE"

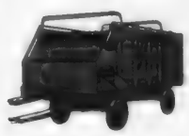
YOU CAN'T BEAT GEHL'S LOWER PRICE

FORAGE HANDLING LINE SHOWN HERE!

Shred-All Cutter

Hay Pick-Up

1-Row Crop Head


PTO Forage Box

Get the full story—send coupon right away for free information

GEHL BROS. MFG. CO. Dept. MC-591, West Bend, Wis.
Please send complete Gehl line catalog, without obligation ☐
Send along a copy of the "Gehl Forage Profit Plan" ☐
I'd like to see the new Gehl color movie on "Modern Forage Handling" ☐
Check here if for school use ☐
Name_____ Acres Farmed_____
Address_____ State_____

ERNEST LAMOTTE
Pershing, Indiana:

"Portable Sprinkler Irrigation raised my corn yield from 38 to 125 bu. per acre"

Ernest Lamotte's portable sprinkler irrigation system *paid for itself in three years* on his 154-acre farm.

Corn yield on high fertility bottom land jumped from 38 to 125 bushels per acre. Lamotte says, "Before irrigation, we used a population of 12,000 plants per acre. We are now using 20,000."

This increased production story is being repeated year after year, in all parts of the country, on all kinds of farms and crops. Portable sprinkler irrigation, with light, tough Reynolds Aluminum Pipe can do the same for you. Reynolds pipe is rustfree, economical to install, and *long-lasting*. Call on your local Reynolds Aluminum Irrigation Pipe dealer soon.

Watch Reynolds All-Family Television Program "DISNEYLAND," ABC-TV.

Reynolds Metals Company
P.O. Box 1800-SJ, Louisville 1, Kentucky

I understand Reynolds has a complete line of lightweight aluminum pipe for every type of irrigation system. Please send me more information on irrigation for:

☐ Dairy ☐ Truck Farming ☐ Livestock ☐ Fruit Growing

Name_____

Address_____

City_____ State_____

though, like Diz Dean, wasn't so daffy. Herman could go half a season without cashing a pay check. He had the do-re-mi. Now the Babe has a turkey ranch in California among other things. But Warren Spahn, the great Milwaukee lefthander, is probably a better example of a city boy making good in the country. Right after the war Spahn bought acreage at Hartshorne, Okla., and stocked it with cattle. Not only did his cattle holding increase but oil was discovered, adding to his already bloated income.

Some farm lads got a taste of big city life, liked it and stayed. Some went back to the soil, like Sunny Jim Bottomley of Bourbon, Missouri, or Edd Roush, the great centerfielder from Oakland City, Indiana. Indeed in the old days Roush used to hole up on the farm, snug and warm, holding out on the Cincinnati Reds or the N. Y. Giants. Kent Greenfield, a former Giant pitcher, now operates an experimental vegetable farm at Guthrie, Kentucky. George Cutshaw, a wonderful second-sacker for the Dodgers around 1916, made a bundle from alfalfa in the San Fernando Valley. Ferdie Schupp, of the New York Giants of 1916 and 1917, who holds the big league earned run record for one season, is a gold prospector in Arizona. Ole Bobo Newson is a mule auctioneer. Chick Hafey is a cattle and sheep rancher at Napa, California.

Today, Duke Snider has an interest in a big avacado promotion in California. Grady Hatton, formerly of the Cincinnati Redlegs and other big league clubs, buys cattle with his savings and operates a ranch in Texas. Ed Bailey of the Redlegs is doing the same at Strawberry Plains, Tennessee.

Clint Courtney, the Washington catcher, jumped from cotton picking to ranching. Clint is formerly from Mobile, but now lives in Coushatta, Louisiana, the same town which boasts Joe Adcock of the Braves.

Georgie Kell, a one time batting leader of the American League and now with Baltimore, raises cattle at Swifton, Arkansas. Duke Maas of the Kansas City A's is an active farmer. Maas' father has a big farm outside Utica, Michigan.

The ranks of baseball are salted with young men, farmers by birth and farmers by inclination and trade, and doing well.

So many of the boys from the barns were pitchers, great ones. And one of the greatest was Rapid Robert Feller. Bob, the idol of youngsters everywhere, and the one young man who proved he could do it even at the age of 17, probably had more actual farming experience than any we have mentioned. Bob came off a farm at Adel, Iowa, and pitched for the Farmer's Union team in the National Amateur tournament at Dayton, Ohio, in 1935. He has become a phenomenal success not only as a pitcher, but as a man. He did everything there was to do in baseball and military service. He has handled himself as well as any man could, both morally and financially: a wonderful example to farm lads everywhere; a wonderful example to the youth of America. A splendid representative of professional baseball.

The farms have given baseball some of the best of their sons. The strong, the eccentric, the colorful and the finished products. The rural areas will always, I believe, provide the best of that which is necessary for the existence of big league baseball.

THE AUTHOR: Waite Hoyt at the age of 15 signed with the New York Giants while still in Erasmus Hall High School, Brooklyn. He progressed through the minors and made his major league debut with the Boston Red Sox in 1919, winning his first game, against Detroit. In 1920 he went to the Yankees and pitched two winners in the World Series that year. He was with the Yankees until 1930. He was with various teams until 1937, when he entered the radio field in New York. In 1941 he signed on with a Cincinnati station and this year, 1958, he starts his 17th season as the "voice of the Cincinnati Reds." Mr. Hoyt is a talented painter and probably the best-dressed man in Cincinnati.

THE LAST FARMER

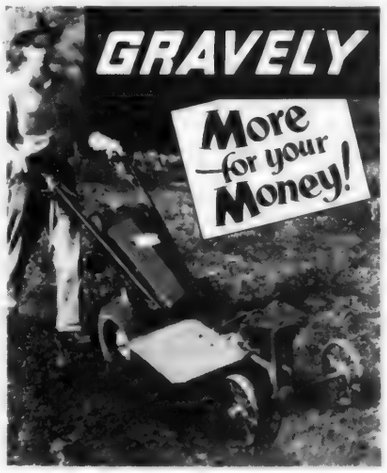
(*Continued from page* 65)

by the census taker in 1950 by the number who were leaving farming each year and arrived at the figure 151.44. He added 151 years to 1950 and came up with the year 2101 as the last one for the farmer. Carrying the number to two decimal places was very shrewd; 44/100ths of a year was 160.6 days. This figure made is possible for him to predict that the last farmer would disappear at 24 minutes past 2 in the afternoon of June 9 in the

year 2101. That 24 minutes past 2 gave his prophecy a terrible feeling of exactness that made people believe it even though others came out almost immediately with contradictory dates.

As a matter of fact, Blackenschultz's computations had just appeared in an obscure agricultural journal, *The Farm Quarterly,* when John H. Bennourse came out with a much more conservative estimate. Bennourse began with the growth in farm size, which was figured at 2.23 acres a year and, using this growth rate as a start, he estimated that the number of farms would be cut in half every 96 years. At this rate, in the year 3870 there would be but eight farmers left. And here is where Bennourse showed his genius. "It is reasonable to presume," he said, "that two of these farms will belong to Texans and that during the year one of them will lose his farm to the other in a game of poker. Three of the farms certainly can be expected to belong to widows. Since there will then be so few farms, there will be one farm management company which will manage all three of them; in effect making them into one farm. The rest of the farms, one can easily suppose, will be suffering from an unfavorable corn-hog ratio and so will be taken into a giant vertical integration. Therefore, I predict that the next year will see the final consolidation and extinction of the farmer."

While these men were arguing as to just how soon farmers would squeeze each other out, Gail O. Wellsbraith came up with a third estimate based on how soon superhighways and subdivisions would use up all available land. Wellsbraith claimed that even if all of the agricultural land were consolidated into a single farm in 3871 as Bennourse insisted, it would be neither a very large farm nor would it last very long because—according to *his* figures—by 3873 the entire earth's surface would be covered with concrete roads and ranch-type houses with handkerchief sized lawns. Wellsbraith left himself a big out, however. "If they begin planting high hedges to screen the picture windows," he said, "they'll use more land and that will shorten the time. If, on the other hand, there should be a swing toward the



★

Because you get . . .

More POWER for TOUGH Jobs!

Gravely does jobs other tractors won't . . . because the 5-HP Gravely has the *extra* power that makes tough jobs easy.

Proof? See the Gravely and Rotary Plow attachment making a perfect seed-bed in one operation!

Gravely's 30 sturdy, performance-proved tools lick every lawn and garden job—*faster, easier, better!* Remember, the Gravely's *all muscle*: direct engine drive puts the power where it counts — at the working tool! All-gear drive, power reverse, optional starter, *extra* power for tough jobs!

New 24-Page "Power vs. Drudgery" Booklet shows how Gravely's power versatility and performance can solve YOUR problems. Write for it today!

GRAVELY TRACTORS, INC. EASY PAY PLAN
BOX 332 DUNBAR, W. VA.

PERFORMANCE-PROVED SINCE 1922

Here are two examples that show how you can get

MORE PROTECTION WITH ALUMINUM PAINT

One coat of quality aluminum paint on tanks, piping, field equipment and rustable metal farm buildings will protect against moisture, rust and corrosion. Indoors and out—in countless places around the farm—aluminum paint makes surfaces brighter, better looking, easier to keep clean and more durable. It's just like putting on a bright, shining coat of liquid aluminum! Use aluminum paint around your farm to protect and add new attractiveness to buildings and equipment. Send coupon below for booklet of other uses and helpful suggestions.

Asphalt-aluminum roof paints and coatings extend the life of built-up and rustable metal roofs. Moisture is sealed out with a coat of metallic aluminum so rusting and deterioration are retarded. Asphalt-aluminum roof paints and coatings also safeguard livestock and help them maintain production because building interiors and shelters are up to 15° cooler in summer. To be sure you get a quality brand, look for the Warranty Seal on the can. It's your assurance of an approved asphalt vehicle containing at least two pounds of metallic aluminum pigment in every gallon.

By the makers of Reynolds Wrap

The Finest Paints Made with Aluminum are made with REYNOLDS ALUMINUM PIGMENT

Reynolds Metals Company
P.O. Box 1800-PF, Louisville 1, Kentucky

Please send more information on:
☐ Aluminum paint application and uses
☐ Aluminum roof coating advantages

Name _____

Address _____

City _____ State _____

NEW... and only BRILLION has it!

TRIPLE-ACTION

HAY CONDITIONING

pinches... buckles... crushes, cuts drying time in half

Some conditioners pinch, others crush... *only a Brillion pinches, crushes and buckles.* The pick-up and guide rolls pinch all stems, then feed 'em to the two rear crusher rolls. But because rear rolls move slower stems buckle before entering. That's Triple-Action! So effective it even crushes stem nodes . . . conditions *every* stem no matter how it lays in the swath. Means uniform drying — higher quality hay — less money for supplements. Call your Brillion dealer today.

Brillion

HAY CONDITIONER

IF BRILLION MAKES IT—IT MUST BE GOOD

leaves the moisture in the field — the leaves on the plant

Clip and mail to Brillion Iron Works, Inc., Dept. HC-3-3, Brillion, Wisconsin
Send complete information on the new Brillion Hay Conditioner
☐ I am a student
Write your name and address in the margin.

FARM BOOKS RECOMMENDED BY THE EDITORS

Livestock Books

Feeds and Feeding (22nd ed.)—by F. B. Morrison **$9.50**
New edition of the complete book on livestock and poultry feeding.

Beef Cattle—by Roscoe R. Snapp..... **$6.50**
A carefully revised edition of this excellent book on beef production.

Swine Production—by W. E. Carroll & J. L. Krider **$6.50**
The do's and don't's of turning feed into pork and on into cash.

Dairy Science (2nd ed.)—by W. E. Peterson **$6.50**
A new edition of one of the best books on dairying.

The Livestock Book—by W. R. Thompson, et al. **$4.25**
This is the sequel to the best selling "Pasture Book." It's a good one.

A Veterinary Handbook for Cattlemen—by J. W. Bailey..... **$5.00**
For that emergency when you can't reach the veterinarian.

Profitable Sheep—by Spelman B. Collins **$7.50**
The best beginner's sheep book we've seen.

The Schooling of the Western Horse—by John Richard Young **$5.95**
One of the most readable books we know of on horsemanship. 314 pages and scores of drawings and photos.

Farm Management

The Farmer's Handbook—by John M. White **$4.95**
Easy reference book on crops, livestock, and farm problems.

Farming for Profit—by H. R. Herndon **$3.75**
For those starting in agriculture.

The Farm and Ranch Record Book **$4.50**
Loose-leaf farm record-keeping book. Ideal for income tax purposes. Refill sheets available.

Doane Agricultural Digest—by Doane Agricultural Service, Inc., 1st year **$25.00**
A 400-page loose leaf reference volume of management ideas plus a semi-monthly report of market forecasts and ideas.

A Practical Guide for the Beginning Farmer—by Herbert Jacobs..... **$3.50**
A book to give you an intelligent start in farming.

Arithmetic in Agriculture—by T. H. Fenske **$2.40**
Basic arithmetic but also quick tables for figuring milk costs, protein in rations, fertilizer rates, etc.

Crops and Soil

The Pasture Book—by W. R. Thompson **$3.50**
Revised edition of this information-packed book.

Forage Crops (2nd ed.)—by Gilbert H. Ahlgren **$7.50**
A new second edition, giving emphasis to the mechanization of grassland farming, the use of fertilizers, etc.

Sprinkler Irrigation—by A. W. McCulloch and J. F. Schrunk..... **$6.50**
How to operate, maintain sprinkler systems.

Mineral Nutrition and the Balance of Life—by Frank A. Gilbert..... **$5.95**
A review of the mineral needs of the soil, plants and animals.

Index to The Farm Quarterly..... **$1.00**
The first 10 years' articles arranged by subject matter for easy reference.

The King Ranch—by Tom Lea. 2 Volumes **$17.50**
A brand new and excitingly told history of Texas' most famous ranch. Beautifully illustrated with drawings by the author, handsomely bound and boxed, this is an ideal gift item.

Write for your free Farm Quarterly FARM BOOKS CATALOGUE, listing 200 titles in the agricultural field.

THE FARM BOOK STORE
c/o "The Farm Quarterly"
22 E. 12th Street
Cincinnati 10, Ohio

I

I enclose $ ..... for these books:

.....

.....

and enter my subscription to Farm Quarterly

☐ 1 Year $2 ☐ 2 Years $3.50 ☐ 3 Years $5.00

Name .....

R.R. or Street.....

City..... State.....

Your order will be sent to you postpaid. **(Buyers living in Ohio should add 3% to price for sales tax on book orders. All prices subject to change.)**

duplex, it could add as much as a hundred and fifty years to the process."

One economist, Milo Paarlbutz, postulated a quicker, more rugged end for farmers based on what he called the *law of the geometrical growth of the ideal staff*. This law was based on two theorums (1) the importance of an administrator is measured by the size of his staff; and (2) every government worker is convinced that his efficiency would be vastly improved by having one or two helpers to free him for more important work. On the basis of these two assumptions, Paarlbutz predicted that by 1997 the United States Department of Agriculture bureauagricy (a term he coined) would exactly equal the then number of farmers. From here on, any slight ripple in our economy might endanger this whole structure. Should this happen, he felt, the bureauagricy would abolish the farmers to protect their own position.

It was about this time that a member of the primitive church—The First Church of Cybernetics—fed some of this data to a thinking machine, one of the ancestors of The Great Machine. I should explain that this was the age when fertilizers had reached the just-throw-on-a-handful-and-jump-out-of-the-way stage. When the machine received the data, it gulped, shuddered, thought for a moment, shrugged its transistors, and began clicking out questions. The first one it asked was, "Have you thought where you are going to put the surplus commodity bins in fifty years?" It glowed for a moment and then wrote, "This will take space, space, space. What about parking lots? What about amalgamating with Australia and Canada? What about drive-in movies? What about acceleration and retarding factors? What about something to eat?"

Before the Cybernetic Shamen had agreed upon answers to these questions, the great soybean breakthrough occurred, changing the whole problem. Soybean production occupied 93 per cent of all agricultural land, for man had already learned to convert soybeans into satisfactory substitutes for milk, cream, butter, lard, soap, steak, jello, hamburgers, corn flakes, linoleum, pressed duck, chewing tobacco, and blood. Then, suddenly, dramatically, they learned how to make soybeans out of nitrogen, in the form of urea, and corn cobs. Then, just as dramatically, they learned that corn cobs weren't absolutely necessary.

After that—who cared what happened to the farmer: We would have disappeared within a decade had not the Eleanor Roosevelt Foundation organized the Society for the Prevention of the Extinction of the Farmer and arranged that we, my family, the last of the farmers, be made a trusteeship of the U.N.

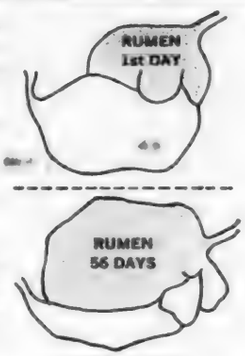
And so we have lived here on this plot of land, father and son, generation after generation, for the past 172 years. We have grown used to people watching us,

Dry feed, not milk, builds the rumen–

DOUBLE RUMEN SIZE IN JUST 56 DAYS

with Calf Manna, Suckle, and Hay

Calf Manna assists rumen development immediately because it is the only pelleted calf feed built to be fed the day the calf is dropped. *And rumen size is doubled in only 56 days with 42 lbs. of Calf Manna, 20 lbs. of Suckle, and hay.* This means you have a big, roughage-eating calf at 2 months of age for only $7.56 plus your hay and grain – and you'll save double this cost in milk alone!



Only the rumen bacteria digest coarse grain and roughage

EASIEST CALF FEEDING PROGRAM

Calf Manna, fed with colostrum for 4 days; then fed with Albers Suckle until the calf is eating 1 lb. of Calf Manna per day (approximately 20 days); then fed with hay and grain, *develops far bigger, sturdier calves at 50% less cost* than a regular milk diet – and puts them in your milking string *3 to 4 months earlier.*

See your Calf Manna-Suckle Dealer today, or write us for the 40-page booklet on "How to Raise Better Calves."

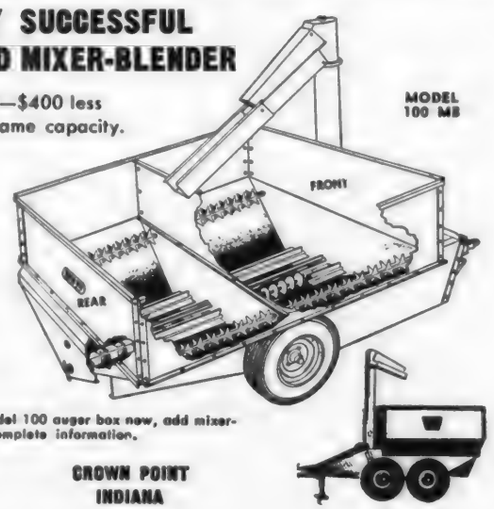
ALBERS MILLING COMPANY

1016 Central St., Kansas City 5, Mo. 5045 Wilshire Blvd., Los Angeles 36, Calif.

AT LAST! A TRULY SUCCESSFUL PORTABLE PTO FEED MIXER-BLENDER

- LOW COST! At least $200—$400 less than stationary mixer of same capacity.
- 3,500 LB. CAPACITY! Holds 90 bu.—112 cu. ft.
- 5 FORCE FEED MIXING ROLLS!
- MIX TO COMMERCIAL STANDARDS ON YOUR FARM

JUST PUSH IN TO MIX!



Also available as attachment—buy Model 100 auger box now, add mixer-blender kit later. Write today for complete information.

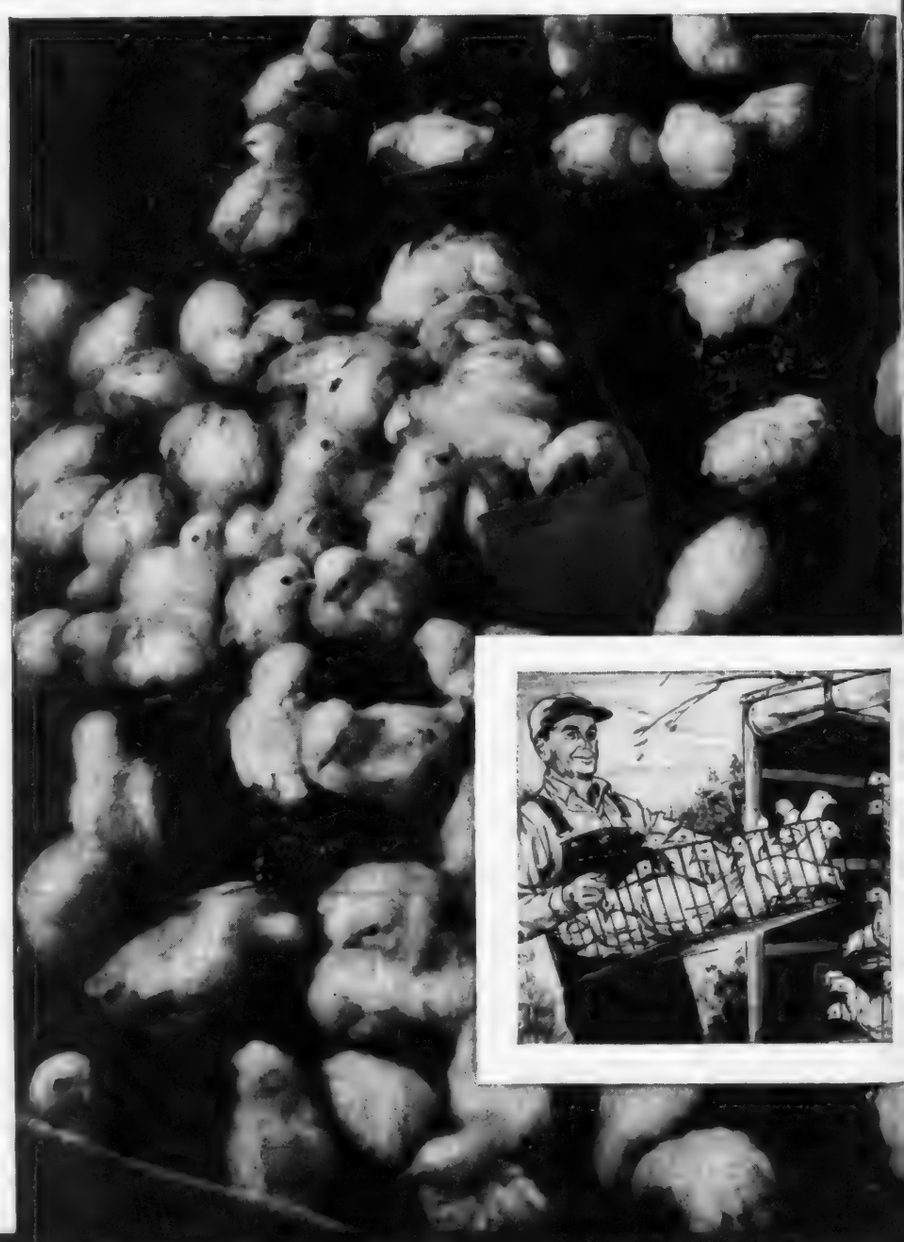
HELIX CORPORATION Dept. 2-D CROWN POINT INDIANA

CYANAMID

Make '58 your best year yet!

Build up their health and your

Broilers and Layers



Here's how:

1. Start your broiler or layer chicks off right. Mass-vaccinate them with BIOLATOR Dust Vaccines. "Dust away" Newcastle Disease and Infectious Bronchitis at the rate of 10,000 birds per hour. You save time, money and labor.

2. Use good starter and grower feeds containing wide-range AUREOMYCIN Chlortetracycline. It's the sure way to protect chicks against CRD, non-specific enteritis, synovitis, sub-clinical disease and the effects of stress. AUREOMYCIN helps them grow fast and sturdy, gives them the vigor they'll need to be profitable to you.

3. If at any time, you have trouble with birds not eating, give them AUREOMYCIN Soluble in the drinking water. It's fast-acting and effective.

4. For coccidiosis, pullorum disease, coryza or acute fowl cholera, SULMET Sulfamethazine is the all-around answer. Just add SULMET to drinking water. It quickly produces effective blood levels of sulfamethazine and knocks out disease at *minimum* cost per treatment.

AUREOMYCIN® SULMET® BIOLATOR® dust vaccines

income the Cyanamid way!

FOR BROILERS Follow the four-point program on the opposite page and you'll send fine, meaty birds to market at less cost, in less time, on less feed. It's your *all-around* profit program!

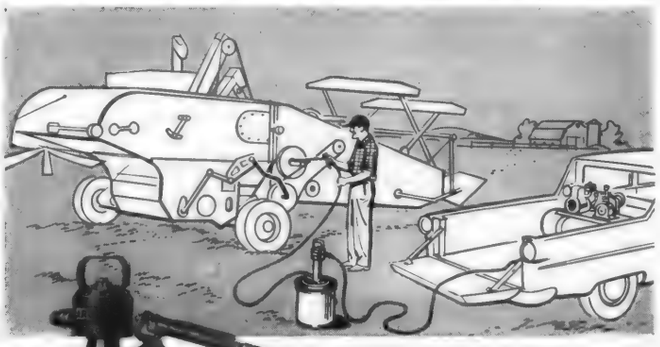
FOR LAYERS During the entire productive life of your layers, remember one thing: You never really pay for AUREOMYCIN, *it pays you.* Use good layer and breeder feeds containing AUREOMYCIN and you'll *get more eggs per pound of feed.* Your extra profit is far more than the cost of AUREOMYCIN. You also get more early and late season eggs and keep production up under stresses.

Keep AUREOMYCIN Soluble on hand for immediate spot use in the drinking water if at any time birds don't eat well or egg production falls off. With AUREOMYCIN Soluble, you can restore normal vitality – *and egg production* – quickly.

Both AUREOMYCIN Soluble and AUREOMYCIN in the feed fight "colds", CRD, blue comb and invisible diseases.

Ask your hatchery, druggist, feed dealer or veterinarian for BIOLATOR Dust Vaccines, AUREOMYCIN Soluble and SULMET. Ask your feed manufacturer or feed dealer for good broiler and layer feeds containing AUREOMYCIN.

NOW! top farm lubrication at LOWEST COST!



ARO AIR POWERED LUBRICATOR

$123.85

Ask for ARO Model 612-850

Here's powerful, fully automatic farm lubrication at an amazing LOW PRICE! A terrific value—gives you the utmost in modern lubrication for farm implements. This new ARO Lubricator handles light or heavy greases. Booster control handle develops 12,000 lb. grease pressure on 100 lb. air. Fits 25-35-40 lb. pails. A completely portable 2" lubricator. Assures fast clean grease delivery. Can be operated off most ½ h.p. compressors with storage tanks. Rugged, dependable.

SPEEDY, HANDY!

New FARM LUBE KIT

5 lb. Capacity — Permanent Air Prime

Faster lubrication, volume delivery for all-around farm use! Saves up to 50% in greasing time. Fully portable.

Permanent air prime. One air charge lasts all year.

Holds 5 lbs. of grease. A 2½ days lubricant supply without re-loading. Assures faster, cheaper, cleaner lubrication of all farm implements.

See your farm equipment dealer now . . . send coupon for new Farm Catalog.

$44.95

Model 640-100 includes both Aro-Pak and Aro-Fil for quick refills.

THE ARO EQUIPMENT CORPORATION
Plants in Bryan and Cleveland, Ohio
Los Angeles 7, Toronto 15, Ontario

ARO LUBRICATING EQUIPMENT
Also . . . Air Tools . . . Aircraft Products . . . Grease Fittings

The Aro Equipment Corporation
Bryan, Ohio

Send me latest catalog information on:

☐ Air Powered Model 612-850 Farm Lubricator
☐ Aro Farm Lube Kit, Model 640-100

NAME_____

R. F. D._____

TOWN_____ STATE_____

their noses flattened against the glass enclosure, as we went about our chores.

Each week they have watched us eat the products of the farm to demonstrate their uses, though, of course, we have *actually* lived on pelleted, irradiated nitrochlore like everybody else. As a matter of fact, I even developed a depraved taste for sirloin steaks when I was a youngster and worried mother terribly by asking for them between our public farm meals.

Occasionally, one of us would decide to leave the farm. My brother did that, but later I saw him looking longingly through the glass, hoping to get back in. Once, I climbed on top of the silo and looked out onto the world that supported me. It was evening and the city, under its great protecting dome of plastic, glowed and twinkled. Rockets were rising with a magnificent rush through the transport chutes out through the dome into space. Luminous, hovering mobiles darted about like amoebae in a lettuce leaf broth. How could man have done so much, I wondered. For a moment my eye fell on a young bean plant sprouting there on the cement rim of the silo; rootlets probing each minute crevise, firm translucent stem hoisting up the two bean halves, growing toward the light. I decided never to leave.

I have been happy here. Recently, I felt that I was on the verge of solving one of our ancient problems—how to get the first cutting of hay in before it was rained on. We worked hard all of our days and in the evenings we used to sit and amuse ourselves with a sort of a patience game my great-great-grandfather invented called Converting to New Parity.

I know that it is sacrilegious of me to think this, but I believe that our life would have gone on in this happy way forever if one of the Praying Mentors had not come across the early texts of the farmer disappearance problem while going through some early scrolls. He and others of his sect reverently considered the data. They asked the venerable Head if this might not make a suitable offering to The Great Machine. At first he took a very matter of fact view of the entire matter. "But the farmer disappeared a hundred years ago; it would not be fitting to ask It a question which was long ago answered. Do you doubt that The Great Machine would know the date on which the farmer disappeared? Have you no faith?"

But one of the Mentors, whose argument is so refined that it is claimed he can even polish breath, said gently, "Can it truly be said that the farmer is extinct when a farmer still lives and farms?" The Head granted them permission to feed The Great Machine.

When they fed in the information, Its lights twinkled appreciatively, Its feedback mechanism went into operation, and Its memory tapes whirred. In the awful hush, the benign clatter of Its keys was heard and It gave forth an answer.

And when The Great Machine speaks, man must obey for It is never wrong.

And so I must go, for It said that farmers would disappear when the year 2140 was 60 days old. That would be on February 29th of this year.

Good-bye, friends. Tomorrow is Leap Year Day for me.

THE OTHER MAN IN THE BARGAIN

(*Continued from page* 48)

farmer who goes on the market only once or twice a year hope to compete successfully against a fellow like that without some expert help? Let him just try to estimate the yield of his cattle. If he comes within two per cent he'll think he's good. In our league, when a man is that far off he's still a rank bush leaguer."

You Can Control Weight

One factor over which the feeder could exercise more control is the weight at which he gets his cattle to market. The more popular weights vary from market to market but in general the 600 to 650 pound steer carcass, 400 to 600 pounds in heifers, is always in demand. This is the kind of choice carcass the chain stores

like best and the chain stores are a big element on the demand side of the market.

Hilton brings out another point which illustrates the importance of uniform weights. "We have a customer in town here," he says, "who runs a very good restaurant. His specialty is a $2.50 steak dinner. He buys loins from us and he wants them all of a uniform weight. This makes weight doubly important. A buyer who wants a 640-pound carcass just won't take one at 680. An 1150-pound choice steer would be acceptable; one that was 50 pounds heavier would not fill the bill."

"Soft boned" cattle, young cattle, are the kind which are in demand on today's markets. This is generally yearling meat which has a fair amount of fat but is not too wasty; that is, not too fat. Older cattle are hard to sell, especially when a surplus develops.

The People You Meet

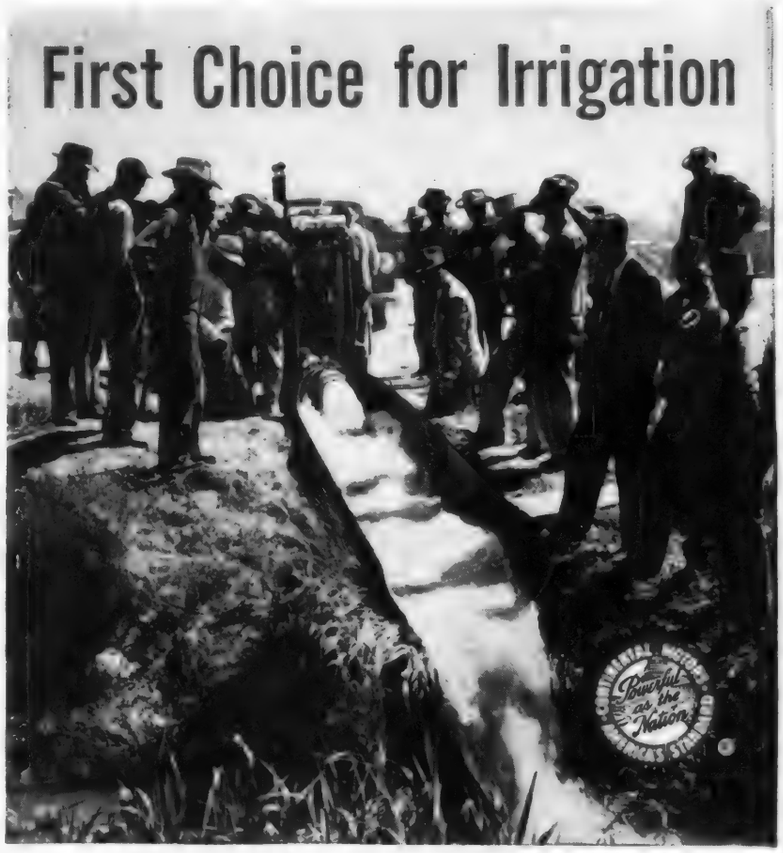
There are all kinds of people around a stockyard and the buyer has to know how to work with them all. "Some farmers," Hilton says, "have a reputation for turning out good, honest, well-fed cattle. We always like to buy their stuff. The little fellow who comes in with one load a year you seldom remember from one year to the next, unless his stuff is exceptionally good or exceptionally poor. In either case you won't forget it and you'll either be looking for it or be on your guard against it.

"Every commissionman has his own way of dealing, too. Henry Schwab down there would no more think of selling at the opening gong than he would think of eating his own hat. He always wants to feel out the market a little. Bob Ernst, on the other hand, is a little more aggressive, or maybe just a bit more confident, and if you bid him right he'll take you up without any hesitation.

"The one thing I would advise any farmer in selling his livestock is to work through a capable, experienced, commissionman. Those fellows know the market and they know how to trade; they are doing it all day long every day. And once a farmer does consign his cattle to a broker he ought to let him handle the deal rather than try to get inspiration from a low-flying angel. I've seen it happen more than once that I'd bid on a bunch of cat-

Here's the sign for more egg production. See your nearest Honegger dealer.

First Choice for Irrigation



... CONTINENTAL RED SEAL POWER

The formal start of pumping from this well, one of 27 owned by the Pioneer Irrigation District, was big news to the farmers of the Caldwell-Nampa area in Idaho. As the first irrigation installation in the state to operate on natural gas, it ushers in an era of lower-cost irrigation power... A Continental M-330 drives a Layne-Bowler turbine pump with a 74-foot setting in a 120-foot well. In the demonstration run, speed was increased gradually to 1,800 rpm., boosting the flow on open discharge to 2,700 gpm.... The Continental line includes models designed for use on all standard fuels, and engineered to the needs of every type and size of irrigation job. On farm and ranch, as in other fields where dependability counts, your best buy is famous Continental Red Seal power.

WORLD'S LEADING INDEPENDENT MANUFACTURER OF INTERNAL COMBUSTION ENGINES, CONTINENTAL MOTORS OPERATES PLANTS IN ATLANTA, DALLAS, DETROIT, MILWAUKEE, MUSKEGON, AND TOLEDO, AND IN ST. THOMAS, ONT., PRODUCING AIR-COOLED AND LIQUID-COOLED ENGINES FOR USE ON LAND, AT SEA AND IN THE AIR.

CONTINENTAL ENGINES ARE BACKED BY FACTORY-APPROVED SERVICE AND GENUINE RED SEAL PARTS ALL OVER THE WORLD

Continental Motors Corporation

MUSKEGON • MICHIGAN

Barney Davis, Barnyard Engineer, says:

"THIS IS AUTOMATION... without extravagance!"

Here's a push-button livestock feeding system that consolidates many practical ideas developed through 62 years of experience in manufacturing and selling feed equipment. This ingenious system is available either as a complete package or in one or more items on a "do it yourself" basis with Krimper Kracker®, Transit Mixer, Granulator and Metering Bins.

Plant pictured here easily handles 50 to 500 cattle on full feed, costs only $3,895.00, quickly pays for itself. Larger units handle up to 25,000 head.

Send postcard for complete information.

DAVIS BUILT HCD SINCE 1894

H. C. DAVIS SONS'

BOX FG-185, BONNER SPRINGS, KANSAS

SOW Scotts®

Always the Newest PROVEN Varieties

LEGUMES, GRASSES — New proven varieties are always found at Scotts: Vernal, Naragansett, Atlantic, DuPuits alfalfa; Penscott clover; S-37 orchard grass; Lancaster and Lincoln brome; Viking trefoil; Madrid sweet clover; Harosoy soybeans; Piper sudan—a complete line of quality seeds.

OATS, SORGO, HYBRID CORN — Newton oats, Hybrid Grain Sorgos, barley, and a selection of 20 vigorous growing, clean picking, Hybrid Corn varieties from 90 to 120 days maturity that fight unfavorable conditions and produce crib-filling crops on a wide variety of soils.

FREE

Send postcard for latest offering and 2-year free subscription to CROP NEWS and VIEWS to keep informed on latest seed developments and practices

SCOTT FARM SEED CO.

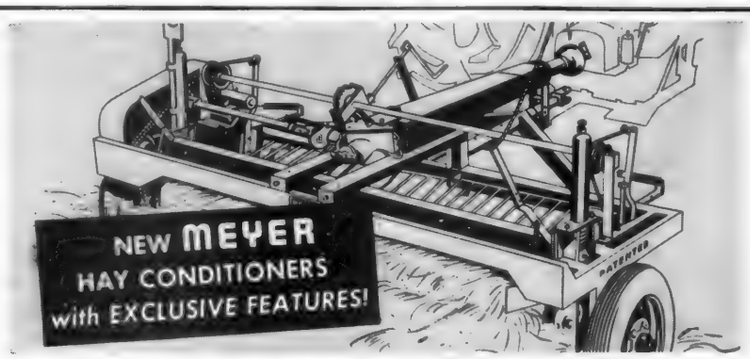
Locust Street Mechanicsburg, Ohio

PURE the cleanest seed you can buy anywhere

LIVE unsurpassed percentage of germination

SEED backed by over 80 years of farm seed experience

for Better Stands . . . Greater Production



Cut and condition in the *same* operation, an exclusive MEYER patented feature. Stems are cracked entire length—aren't broken in spots as with crimper, allowing them to dry fast as leaves. Protein-packed leaves are not stripped—remain on stems. Hay is mow-ready 50% faster. Exclusive RETRACTABLE MULTI-FINGER PICK-UP and SEMI-SLOTTED LOWER ROLL.

MEYER Conditioned Hay is the complete feed, provided by nature, without supplements—has greater feed value . . . puts more milk in your pail . . . more pounds on your beef . . . sells for more. New LOW PRICED MODELS for your present tractor and mower.

Get the Original, Proved Hay Conditioner—get a MEYER—backed by 5 years *more* experience, than any other make.

Write for Complete Information Today!

MEYER MFG. CO., Box 5352, Morton, Illinois

MAKERS OF FAMOUS MEYER ELEVATORS

tle, maybe offer, say, 23 cents on a strong market. The commissionman would know what the score was and turn me down, but the farmer would be jumpy; he'd grab him by the elbow, get him over in a corner of the pen and tell him to take it. Then he'd walk down the alley and see a similar bunch that brought 23½ and yell that the commissionman didn't do a good job for him."

Country Buying

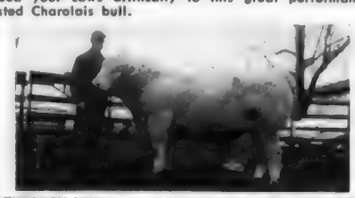
It is no secret that receipts on the big terminal markets are slipping. Who is to blame for this is hard to say. The packers claim they buy in the country because they are forced to go out there. One small packer in a Midwest city, a man who slaughters choice cattle for the chain store trade, puts it this way. "I buy 85 per cent of my kill in the country, not because I want to, but because I have to. They don't come to the yard. I would much rather go over to the yard and buy my cattle than drive all over the country making bids on cattle I may never get. But the farmer seems to think he is smart in selling at home or at a country sale. He thinks he knows what the market is from the reports he gets from the terminal market, when actually there may have been no real test of his kind of livestock at the terminal that day. This is particularly true in sheep. Most sheep raisers around here sell their best lambs in the country and send in their culls. They are, in effect, basing the price for their good ones on what the culls bring at the terminal market."

The packers are also charged with hindering the competitive forces of the market by feeding their own livestock. An official of one of the big exchanges said recently, "When you see a packer move 500 of his own cattle in here on a Sunday there is no reason to be surprised when his buyers don't show much of that old aggressive spirit on Monday morning."

To which the packer again replies, "We wouldn't do it if we didn't have to. We have a big killing gang to keep busy and

OLENTANGY FARMS
REGISTERED CHAROLAIS

Start now on a practical, profitable breeding program. Breed your cows artifically to this great performance-tested Charolais bull.



OLENTANGY JUHAN, one of the top sires of Charolais Breed. Outstanding in weight for age, conformation, and disposition. Captialize on Juhan's prepotency to sire hardy calves with remarkable fast early growth. Your cattle will have longer, broader loins and deeper bulging hindquarters. Save 3-6 months feed and time. Example: Olentangy Nicholas, 7/8th bull calf 6½ mos., 710 lbs. without creep feeding.

Frozen Semen Available

Min. order 10 ampules $65.00 postpaid. Semen can be sent to and stored with your local inseminator. Performance-tested 7/8 to purebloood bulls for sale. Write for brochure.

L. A. DEMOREST & SONS

3 miles east of Waldo, Ohio Phones: 6-3519 • 6-3625

Charter Member American-International Charolais Assoc.

a lot of customers to satisfy. When we heard that cattle on feed had taken a big drop this year we started filling our feedlots."

The size of the killing gang is another factor the buyer has to take into consideration. The big packers have an agreement with their killing floor employees that if a man starts to work on Monday he will be paid for 36 hours' work that week. After he has worked 40 hours he gets time and a half. So it is up to the buyers, on the advice of the plant manager, to buy enough livestock to keep the gang busy. This means there are times when he is going to be under considerable pressure while at other times he may pull out of the market completely.

Holidays have a very definite influence on the market. Thanksgiving, for example, is a big poultry feast. Yet the beef market was extremely good the three days before the holiday last fall. This was because the influence of the off day was felt a week to ten days before, and on the days immediately preceding the feast packers were already buying meat for the following week. The smart producer shied away from the market a week to ten days before Thanksgiving, got his cattle to the yards just before the big Turkey Day. The same is true of Christmas, Easter, and the big Kosher holidays.

The point for the producer to remember is that it takes about ten days from the

INCREASE MILK PRODUCTION 20-25%

with STIMULAC
THYROACTIVE LACTATION STIMULANT

Stimulac with thyroprotein has now been proven right by over 50,000 cows in commercial dairy herds. When adequately supported by high quality dairy feed, Stimulac will increase your herd profits by increasing milk production 20-25% and butterfat test 2-4% without increasing overhead.

To find out how you can use Stimulac to increase your herd's milk production, write Agri-Tech at the address below. Ask for special chart showing the extra profits possible from your herd.

STIMULAC IS A PRODUCT OF
CEROPHYL LABORATORIES, INC.
a division of
Agri-Tech Inc.
BOARD OF TRADE BLDG. • KANSAS CITY, MO.

IT'S NEW!

The next big step toward push-button corn farming!

Butler 300-bushel batch drier and 10,000-bushel Butler building in Fort Dodge, Iowa.
Batch driers also available in 600-bushel capacities, and grain buildings as large as you need.

The whole new concept of harvesting, storing and marketing shelled corn becomes reality with this new Butler mechanized "corn center." If you want to combine corn the modern way, this is your installation.

Every few hours this Butler corn center dries 300 bushels of high-moisture corn and "pipes" it by auger into a tight, dry Butler storage building that's *engineered to hold* corn. And it's all done with a minimum of manpower – probably several hands less than you use now.

Because you're ready to handle, dry and safely store your crop, you can harvest faster and earlier. The moisture content will be higher, so field loss will be lower. You'll have *more corn* to pay for harvesting the new way.

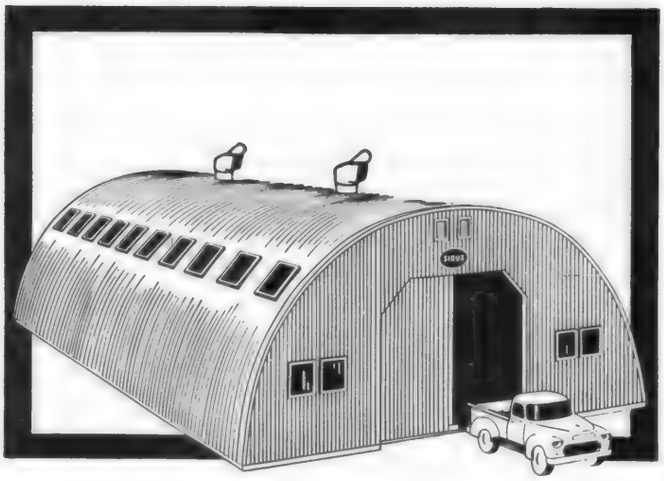
Your storage costs will be less because shelled corn takes half the space of ear corn. You save on shelling costs. And drying, too, because you do it the most efficient way; corn from your field is "pipelined" through the drier and directly into storage without double hauling.

Yes, you have a lot to gain by harvesting and marketing your corn with new efficiency when aided by a Butler corn center. See your local Butler Builder, or write direct.

BUTLER STEEL PRODUCTS

Manufacturers of Buildings
Oil Equipment • Farm Equipment
Dry Cleaners Equipment
Outdoor Advertising Equipment
Custom Fabrication

BUTLER MANUFACTURING COMPANY
7378 East 13th Street, Kansas City 26, Missouri
Please send me free literature on New Era in Corn Handling.
Name.....
RFD.....Town.....
County.....State.....



ONLY THIS NEW

-SIOUX- Steel Building

GOES UP SO EASY—SO FAST!

America's Greatest Value in a Fine Steel Building. Giant Size for any job... at a low, budget price.

Easy, fast, economical. That's the story behind the success of America's newest, strongest, steel building value. The -SIOUX- Steel Building.

EASY UP—SAVES TIME

Three men and simple hand tools put this strong, durable giant up in a fraction of ordinary building time. Easy, simple! Size enough for any job. An ideal machine shed—perfect for loose housing on the dairy farm—just right for grain storage. A real bargain for any farm.

Dependable -SIOUX- quality through and through. Designed for years of trouble-free service.

COMPARE—JUDGE FOR YOURSELF

Before you decide on any type of building, get the facts on this big, rugged giant. Compare strength, size, price and value. You can't beat a -SIOUX- Steel Building!

PRE-SET SILL BOLTS
No measuring or guessing

-SIOUX- STEEL ARCH
Bolted and raised easily

PRE-FORMED PANELS
Pre-drilled, ready to attach

FREE—"Show-Down" comparison. Shows you step-by-step, bolt-by-bolt, why -SIOUX- offers you the biggest bargain in a steel building. Write today. No obligation.

Other famous -SIOUX- Steel Products

-SIOUX- GRAIN BINS

-SIOUX- CORN CRIBS

-SIOUX- HOG FEEDERS

-SIOUX-
STEEL PRODUCTS
THE SIOUX STEEL COMPANY
SIOUX FALLS, SOUTH DAKOTA

time of kill for the cattle to reach the consumer. The period 9 to 10 days before the holidays may show some seasonal weakness.

Tips, Touts and Rumors

The eager ear can pick up as many tips and rumors of shenanigans around the cattle alleys as at the race track. Both varieties must be taken with the same liberal seasoning of salt. And both the punter and the producer will find that his best move is usually to ignore them and play it straight.

"When I used to buy for Wil-A-Hay and Company," an ex-buyer will say, "we'd divide up the offerings with the other packers. Every morning we got the same orders: 'Just follow along and don't excite anything.' Our quota was 20 per cent of the cattle in the yards and that's what we bought day in and day out."

Another observer will chime in, "It's the chain stores that control the market. They tell these packers how much they'll pay and that's the end of it."

And still another will declare that "The little fellow doesn't have a chance if he isn't in the clique. These fellows all hang together, the buyers and the commissionmen. If you're not in their crowd you don't have a chance."

These rumors make interesting speculation and there may even be some basis in fact for them. But even trained, experienced and hard-working government inspectors whose sole job it is to protect the producer against such malpractices have a tough time ever getting the kind of evidence they need to back up the accusations. The obvious conclusion is that if practices such as these exist on markets where both the government and the exchanges police trade practices the man who sells in less regulated spots is simply asking to have his pockets picked.

Actually, the men on the markets are the same as any other businessmen and many of them are several cuts above the crowd. They play the game hard and for the most part they play it straight. The man with the marked deck doesn't last long. The reputable operators, commissionmen and buyers, do business at the same stand year after year and in some cases generation after generation.

The producer who consistently sells his cattle well is the man who has kept himself as well informed as possible and who relies upon sound, practical advice from experts who are on the market every day. Like the skillful buyer he has his sources of information, both general and specific.

Whenever possible he visits the closer terminal and country markets for a double-barreled purpose: to establish contacts with knowledgeable individuals upon whom he can call for advice when he needs it in a hurry; to keep himself acquainted with market trends and maintain a skilled eye for grades and finish.

He follows the day-to-day fluctuations of the market through the reports on radio and television, the daily newspapers and particularly through such market papers as The Corn Belt Farm Dailies—*The Chicago Daily Drovers Journal, The Omaho Daily Journal-Stockman,* etc. He watches not only the price quotations, but the estimates of the next day's run.

He doesn't hesitate to spend a few dollars on a telephone call to various market points to get the very latest information on prices, runs and prospects for the immediate future. He may find as much as a $1 spread between various points which are accessible to him.

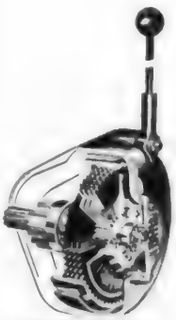
When his cattle are finished and ready to go he doesn't try to wait out the market. Those who do usually find they have zigged when they should have zagged and wind up on the short side, anyhow.

He would never think of selling by the head. Everything goes over the scale at a definite price per pound.

Finally, he is ever mindful of the fact that he is a producer of beef, not a doctor, lawyer, or marketing specialist. He relies on specialists for his marketing services while he concentrates on producing a product of quality which the buyers want. His name is synonomous with good cattle which the buyers purchase with confidence.

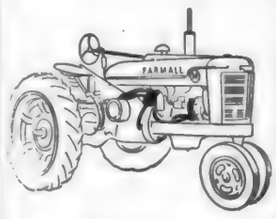
America always follows a pioneer

Today, an entire industry follows M & W pioneer piston development

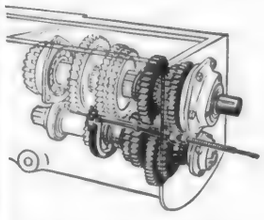


LIVE POW'R PTO

ADD-POW'R AIR FILTER



LIVE HYDRAULIC SYSTEMS



9-SPEED TRANSMISSION

M&W has kept right on marching along ahead of the industry—keeping pace with all the improvements in metals, piston design, ring manufacture and piston construction. That's why, year after year, you'll find new improved M&W Add-POW'R Pistons. Because M&W has found through continuous engineering and testing that each tractor has its own operating characteristics, each M&W Add-POW'R Piston is designed for peak performance in a specific tractor model.

M&W pioneered the larger diameter aluminum pistons; later discovered that piston size alone is not enough. Such tractor piston firsts as chrome oil rings, chrome top compression rings, spun-cast sleeves and offset piston pins were other developments from M&W tractor research and engineering. Now M&W has developed the new, inverted turbulence chamber which further increases horsepower and reduces tractor operating costs. These Turbo-Dome Pistons squeeze every ounce of power from each drop of fuel. Horsepower increase measures as much as 20 to 30 percent by actual Dynamometer test.

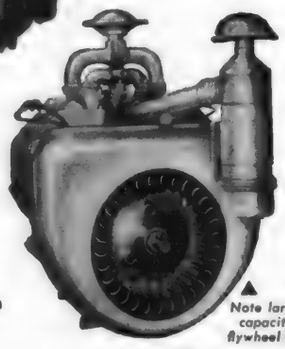
M&W advanced ring design provides perfect seal to prevent blowby and resulting power loss. With an M&W Piston installation there is better scavenging of fuel and more thorough combustion. Performance like this makes it common for farmers with M&W Add-POW'R Pistons to go twice as long between engine overhauls—while still retaining the peak operating horsepower of their tractors.

The Turbo-Dome Piston is just one example of the many tractor products which have been pioneered, engineered, tested and perfected by M&W.

M&W TRACTOR PRODUCTS

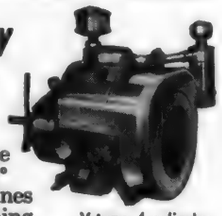
BOX 3909 ANCHOR, ILLINOIS

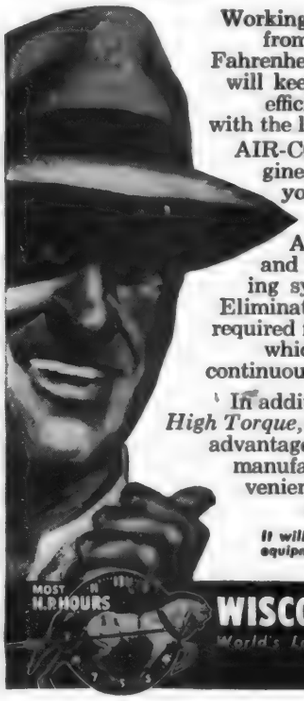
World's Largest manufacturer of the most complete line of tractor improvement products for the betterment of agriculture.



The Weather is never
TOO HOT nor
TOO COLD for...

WISCONSIN *Heavy-Duty*
Air-Cooled ENGINES





Working at any temperature from low sub-zero to 140° Fahrenheit . . . Wisconsin Engines will keep your equipment going efficiently and economically with the least amount of attention.

AIR-COOLING, as supplied on all Wisconsin Engines (3 to 56 hp.), automatically takes care of all your cooling problems. Nothing to freeze in *cold* weather; no radiator dry-ups in *hot* weather.

AIR-COOLING prevents costly engine failures and replacements such as occur when the cooling system of a water-cooled engine is neglected. Eliminates up to 26 separate parts that are generally required for a water-cooled engine. *One simple casting,* which is a part of the flywheel itself, provides continuous, correct cooling on all Wisconsin Engines.

In addition, you get the benefits of basic *load-holding High Torque,* heavy-duty construction in all details and the advantages of *exclusive specialization* in the design and manufacture of AIR-COOLED Engines . . . *plus* convenient servicing when required, through Wisconsin Authorized Distributors and Service Stations.

It will pay you to specify Wisconsin Air-Cooled Engine Power for your equipment! Write for free copy of Wisconsin Engine Bulletin S-223.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

SOW IT ALL

(*Continued from page* 57)

hoppers or any of the other hazards to which wheat is heir take their toll of this year's crop he can pay out the "hot" wheat against it. There is a certain amount of of risk involved, of course, in holding the grain and added expense in the way of depreciation on granaries, insurance premium, premium on the bond on the "hot" wheat, possible outlays for moving or treating the grain, and the county tax based upon a valuation of 70 cents per bushel. Yet the grain in the bin is good property and its value will far exceed these expenses.

What It Takes

Each of the Kolstad farms is a completely independent unit with its own line of equipment. Allen's place is, again, a good example of the setup. Here there are 10 tractors, 2 big International crawlers and 8 John Deere R's, 8 14-foot self-propelled combines, 6 20-foot pull-type combines, a 60-foot hitch of Noble blades (those big 6-foot blades pulled 4 to 6 inches below the surface for the first cultivation), a 60-foot hitch of duckfoot plows (known more commonly in some parts as the Graham-Hoeme) behind which are pulled a hitch of rod weeders, and 3 hitches of shovel drills—one an 84-foot hitch of 7 12-foot drills, one of 4 12-foot drills, and 2 of 2 14-foot drills.

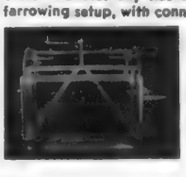
Besides this the farm keeps 6 or 8 pick-up trucks busy and has 3 big tractor and semi-trailer outfits. There are 3 or 4 long grain augers to fill the four big granaries with their 160,000-bushel capacity. And to keep everything in perfect working order there is a completely equipped workshop with a full-time mechanic in charge.

The manpower requirements vary greatly, of course, on an operation like this. Cliff Lingen locks his place up and goes to town to teach school after the the wheat is seeded in the fall. Even on Allen's place, where there is a 600-cow

YOU'LL NEED BIG HUSKY LITTERS TO MAKE MONEY THIS YEAR!

Save Every Pig . . . use
CASWELL FARRO-CRATES

One or two pigs lost per litter may cost you your entire hog profits this year. You can make good income with efficient hog production . . . so plan for your farrowing now. Modern, proven all-steel "Farro-Crates" are collapsible, portable and can be hung up or stored outside. Prevents sow from crushing baby pigs. Thousands in use. Cheaper and better than lumber. The original farrowing crate. Handles any size sow. Free plans available for complete farrowing setup, with connecting panels, in your present buildings.



GET TOP HOG PRICES
KNOW your feed costs . . .
sell at correct weights with a Caswell "WAYO-CRATE."
Don't be "docked" for heavyweights or lightweights. Farm-tested "WAYO-CRATE" is extremely accurate. Tells you when to sell. Weighs hogs, calves, sheep, etc.
FREE PLANNING SERVICE—Just write for complete details and our valuable 16-page "Hog Profits" Book.
CASWELL MFG. CO. Box 453 Cherokee, Iowa

Modern SUN-MASTR ROTARY MOWERS
NEW LOW PRICE
SHRED STALKS
MOW WEEDS and BRUSH

AMAZING PERFORMANCE
Extra Sturdy—Guaranteed
SHRED STALKS and STUBBLE. Turn waste into rich fertilizer. Helps destroy insects. Makes clean plowing easy. MOW pastures, lawns, all types of grasses. CUT largest weeds and vines—brush up to 3" in diameter! Costs so little you can't afford to be without. Advanced design. Exclusive features. Quality built. SIZES and MODELS FOR ALL JOBS and TRACTORS.
FREE BOOK
WRITE TODAY FOR FREE BOOK
SUNFLOWER INDUSTRIES, INC.
589 So. Kansas Olathe, Kansas

herd of whitefaces, three or four men are all that are needed during the winter. At seed time and harvest the labor demands double or even triple.

Being winter wheat, the crop is sown in September on ground which has been fallowed all summer. The big 84-foot hitch of drills can cover close to 450 acres in a day, rolling along behind one of the crawler tractors. No fertilizer is used. The seed is sown at the rate of about 30 pounds (½ bushel) to the acre. Placement is made about 1 inch deep though there are times when the seed is put down deeper to insure contact with moisture.

According to Kolstad, it was the introduction of the shovel drill, a drill equipped with a small duckfoot-type shovel to open up a furrow for the seed, which assured the success of winter wheat in that part of Montana.

Blowing is one of the great hazards in that country so the seed bed is left in a comparatively rough or trashy condition. "We used to use the disk," Kolstad says, "but it worked the soil up too fine, so we have discontinued it." Seed bed preparation actually starts in the spring with the fallow treatments. This is when the big Noble blades are pulled along 5 or 6 inches below the surface to break up the hardpan and cut weed roots. The surface is relatively undisturbed. After this, every time there is a bit of rain the tractors hit the fallow land with duckfoot hitches and rod weeders, killing weeds and volunteer wheat and conserving every possible drop of moisture.

With the 60-foot hitches a piece of equipment traveling 4 miles per hour can cover about 320 acres in a 10-hour day.

During the growing season the wheat is sprayed, either by plane or by surface equipment, for weeds and, if need be, for insect pests. No spraying for weed control is attempted on the fallow ground. One of the biggest problems is volunteer wheat, against which the ordinary weed sprays are ineffective.

While there is one huge field on Allen's place a half mile wide by three miles long, most of the wheat land is a pattern of alternate strips of growing wheat and fallow to control blowing. Since the prevailing winds are from the west and southwest, the strips run north and south.

Kolstad estimates that it costs around $7.50 per acre to maintain summer fallow up to seeding. To seed the crop, spray, combine, store and carry the wheat up to marketing costs another $12.50 per acre, making the total $20 per acre. That, however, is when he is sowing his full acreage. With his tremendously heavy fixed investment in equipment his per acre costs would advance rapidly on a reduced acreage. Basically, this is the compelling motive behind these large scale operations. Liberty County boasts that it has the highest percentage of big farmers of any county in the state and Montana is a state with a lot of big farmers. Just about half of Liberty County's wheat growers ignore their allotments and seed the works. With their huge investments in equipment and plenty of storage space for the crop they can't afford to seed less. They are geared for a big job. Reduced acreage increases their cost per acre and robs them of a reserve against the ever-present possibility of next year's failure.

Who Makes The Surpluses?

A farmer from the Midwest recently made a remark to Hank Kolstad about fellows like him being the cause of the surpluses which are agriculture's millstone. The Montana grower had an answer for that one. "We don't cause the surplus. Wheat is the one crop we are really able to produce efficiently. If we have a bad year and our production falls off, the whole country feels it and the price goes up. It's those farmers back in your part of the country who make the surplus. They can grow corn, or soybeans, sorghum, a variety of small grains; but each of them is allowed to grow 14 acres of wheat—any kind of wheat, soft, low protein, low quality stuff. And they grow it, too. That's what makes the surplus."

The contenders will now retire to their corners and come out fighting when the bell rings.

"We Are Very Pleased With Our DARI-KOOL"

Writes

MR. & MRS. EUGENE MANN
Ottumwa, Iowa

"We Are Cooling Approximately 100 Pounds Of Milk With One Kilowatt Of Electricity!"

"We installed our 300 gallon Dari-Kool in August of 1957. Our electric bill for September, 1957, was the lowest it has been for several years. We have a meter on our tank and we cooled 850 pounds of milk on 9 kilowatts of electricity. In other words, we are cooling approximately 100 lbs. of milk with one kilowatt of electricity with only 50 gallons of milk per day. This will be less than one kilowatt per 100 lbs. of milk when we get in full production.

We are very pleased with our Dari-Kool. It is low for easy pouring and it is easy to clean because of the cold, moist milk tank walls. We are also happy we chose a stainless steel tank."

(signed) Mr + Mrs Eugene Mann

Your Best Buy Is A... DARI-KOOL BULK MILK COOLER

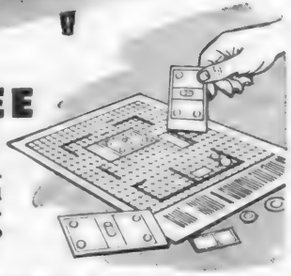
With JUST RIGHT Pouring Height

and other new features to help you produce Better Milk — at Greater Profit — with Less Work!

DARI-KOOL MEETS ALL 3A STANDARDS

Send today for your FREE MILKHOUSE PLAN KIT

Plan your milkhouse with this easy-to-use kit. Includes graph sheets and scale model cutouts of milk coolers, water heaters, etc. Arrange to best fit your milkhouse plans.



DAIRY EQUIPMENT CO., Dept. 28, Madison, Wisconsin

Manufacturers of KARI-KOOL Bulk Pickup Truck Tanks

Of course your farm can compete!

Farming is at a crossroads. You see farms that have adjusted to modern conditions, are more prosperous, and offer a better living than ever before to the families that own and run them.

Then . . . you see farms which have ceased to exist for the families who formerly operated them. Many have been bought by neighbors who discovered the secret of profitable farming in a changing world. Others have degenerated into ruin and neglect.

Successful farms are managed like a business

Today's successful farmer is usually a specialist in production. He concentrates on what he can do best, and uses the services of other specialists for parts of his business *they* can do best. He knows that the science of modern farming is far too complex for one man to master completely.

Hundreds of farmers have turned to the Doane Agricultural Service for help. Working with Doane farm managers, they quickly and efficiently make the changes and adjustments to modern conditions without giving up their independence of action. They free themselves to make their own specialties really pay off.

Doane offers a wide variety of services to fit many needs. For instance, you (or you and some of your neighbors) can arrange to have a half- or full-day consultation with a Doane expert, to talk over your problems and needs—right on your farm. At the other end of the stick, Doane can, if you wish, operate and manage your farm for you . . . if it can be profitable for you.

Write to address below for complete information about Doane farm-operating programs, farm and ranch management, farm problem study, farmstead work-simplification planning, on-the-farm consultation, Doane Authorized Builders, farm appraisal, and the Doane Agricultural Digest® (twice-monthly market and business-outlook information). Absolutely no cost or obligation.

DOANE AGRICULTURAL SERVICE, INC.

5148 DELMAR BLVD., BOX 84, ST. LOUIS 8, MO.

CORN, COTTON & CHEMICALS

(*Continued from page* 93)

herbicides and insecticides the trend of sprayer manufacturers is toward resistant metals in tanks and fittings. Century Engineering of Cedar Rapids, Iowa, and Tryco Mfg. Co., Decatur, Illinois, have introduced a plastic-lined steel tank with resistance to rust, corrosion, and the destructive effects of some of the liquid fertilizers. Century has introduced a new type nozzle made from DuPont No. 105 nylon. It has a black appearance that comes from a light stabilizer it contains which gives it a long life.

Hanson Equipment Company of Beloit, Wisconsin, has built a lightweight sprayer tank in 200 and 500-gallon sizes from fiberglass. It is strong and tough and is rust-free, non-corrosive and inert to all agricultural chemicals. It is priced in the range between aluminum and stainless steel tanks. Since it is translucent the operator can see, by looking through tank walls, just how much spray material he has to work with. Hanson has also brought out a line of ceramic nozzles, made by fired ceramic compositions, and sintered together at extremely high temperatures. Tests have shown that the ceramic, glass-like surface will withstand much more use without corrosion or wear than metal nozzles. The advantage, of course, is that a uniform spray pattern can be maintained.

Generate Your Own Low Cost
ELECTRIC POWER
PIONEER GEN-E-MOTOR
GENERATING PLANTS
BELT DRIVEN • PORTABLE • DIRECT MOUNTED

- *Emergency Use In Power Line Failures*
- *Portable Power Where You Need It*

Generator plant with Gas Engine—Skid Base. 12,000 Watts Capacity. Available without engine for power-take-off.

■ Here's electric power you can easily have—to serve you in many ways. In emergencies, or away from the power line source, Pioneer Generators will operate your power equipment. Available in many models from 500 to 12,000 watts capacities.

WRITE FOR FREE FOLDER
Gives complete details of farm models. Send Us Name Of Your Local Dealer.

Pioneers In Generators For Over 32 Years
PIONEER GEN-E-MOTOR CORP.
5834-A W. Dickens Ave., Chicago 39, Ill.

THE FAMILY COW

(*Continued from page* 133)

weeks. In all those years, my dog, Bud, never missed a milking. Born just after we left the city, he out-lived Hitler.

Chores seize on a boy and won't let go. I have little sentimentality about the good old days nor do I set great store in the adage about giving a boy a cow to keep him from crime's door.

Undoubtedly, modern town kids, just like farm kids, have their own way of solving the problems the family cow once solved for me. A lot of things the cow did for us the wood-burning cookstove did for others, and no one bewails the passing of the cookstove any more than they do the demise of the frozen pump, or the carriage horse, or the garden gate, or the whitewashed picket fence.

Twenty years from now, today's young people will reminisce about whatever it is they have now that their teenagers won't have by that time, and some will say that the kids of 1980 are surely going straight to perdition for the lack of those things.

I won't say that the youngsters today are headed straight for hell because they haven't got a family cow. She came from whence no one knows; she played her little part; and now she's gone. Blessed may her memory be.

THE AUTHOR: Ben Brown grew up with a family cow on the outskirts of Indianola, Iowa. He has remained in and alongside the dairy industry since those days. A graduate of Iowa State, he joined the staff of *Successful Farming* magazine and later served with The Holstein-Friesian Association of America. At present he is associated with the Ralston-Purina Company.

EARN MORE PER COW

Long-Living GUERNSEYS produce longer at high production levels

- ★ Guernseys' natural inheritance of long life means high lifetime production per cow.
- ★ Guernseys are most practical for today's modern dairy methods. They are gentle, easy to handle . . . thus making the most efficient use of labor.
- ★ Guernseys are efficient roughage converters.
- ★ Guernsey Milk has outstanding marketability.

Start a Guernsey Herd now . . . write for information today.

THE AMERICAN GUERNSEY CATTLE CLUB
830 Main St., Peterborough, N.H.

☐ Send FREE information on how to start a Guernsey herd and buy breeding stock.

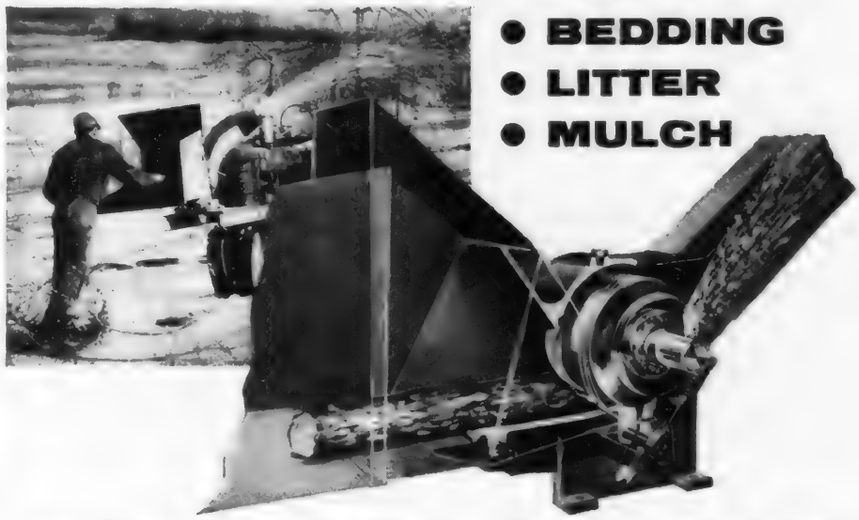
☐ Send FREE information about the profitable business selling nationally-advertised Golden Guernsey Milk.

Name.....

Address.....

Town.....State.....

USE A FITCHBURG *Farm* CHIPPER TO MAKE LOW-COST



- **BEDDING**
- **LITTER**
- **MULCH**

Brush removal is always a tough farm chore . . . hard to load . . . difficult to handle. But you take the hard work out of hauling brush with a Fitchburg Farm Chipper. Brush can be quickly reduced to easy-to-haul wood chips. Chips used to make manure, or as mulch can make brush removal profitable on your farm, too. A FITCHBURG FARM CHIPPER WILL WORK FOR YOUR FARM . . .

. . . IN POUND YARDS:

Wood chip bedding stands up better in wet spots. Pound yards bedded with wood chips cake less for faster loading, easier spreading, yet the chips hold up longer near gates and water troughs. Absorbent wood chips will carry plant nutrients to crop land . . . supply crops with a humus that lasts. Seed beds crust less for better germination . . . tight ground holds moisture better . . . stays open longer.

. . . IN ORCHARDS:

Pruning disposal in orchards combines into one simple, soil building operation when a Fitchburg Farm Chipper is used. Tree trimmings need no longer be hauled. Brush can be fed into the chipper and the chips blown around the trees for mulch. This moisture-holding mulch can be worked into the ground with cover crops or left for weed control.

. . . DAIRY BARNS AND POULTRY HOUSES:

Tough absorbent wood chips really stand up in dairy barns and poultry houses. Your Fitchburg Farm Chipper will cut poultry production costs, reduce dairy barn straw requirements by producing litter and bedding from your wood lot. At clean-up time, or whenever clean bedding is needed, your Fitchburg Farm Chipper will chip bedding or litter quickly at low labor cost. Wood chips can be the answer to your difficult bedding and litter problems—A Fitchburg Wood Chipper will supply wood chips quickly and easily.

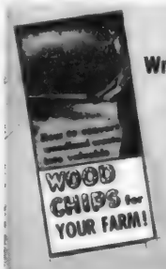
YOUR BEST FARM BUY IS

A FITCHBURG FARM CHIPPER:

The Fitchburg Farm Chipper is engineered for rugged, all-day service. Normal lubrication, with periodic sharpening of the tough chrome steel blades, keeps the Chipper on the go. Thanks to the Safety Spring-Activated Feed Plate, standard equipment on all Fitchburg Chippers, the Chipper adjusts itself instantly to different size wood to give safe, smooth chipping that keeps a Farm Chipper way ahead of clean-up crews. The economy and speed of operation will soon return the Fitchburg Chipper's price of $650 for the mulch Chipper; $960 for the bedding Chipper.

. . . WITH A ONE YEAR GUARANTEE:

The one year guarantee given with every Fitchburg Farm Chipper assures you peace of mind and guaranteed economy of operation. Find out how a Fitchburg Farm Chipper will save time, labor, and money on your farm.



Write for "WOOD CHIPS"

This free booklet gives complete details...see how other farmers use the Farm Chipper . . . compare the facts with your farm.

FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. FQ-38

Send my free copy of "Wood Chips for Your Farm!" to:

Name

Address or R.F.D.

Town State

We have (Make and Model) Tractor

THE "Prairie Lady" by HOME-WAY

HIT OF THE
FARM PROGRESS
SHOW

ready for your family — your budget!

Previewed by 200,000 enthusiastic visitors, the "Prairie Lady" was acclaimed "Farm Home of Tomorrow"! You can move into your own customized version *next month*. Fits your budget now . . . expands later with Home-Way's easy Add-A-Unit Plan. Home-Way saves money with large scale buying and production-line assembly. 30 other models offered.

STOP DREAMING - START LIVING
MAIL NOW

GBH-Way Homes, Inc., Dept. FQ
Walnut, Illinois

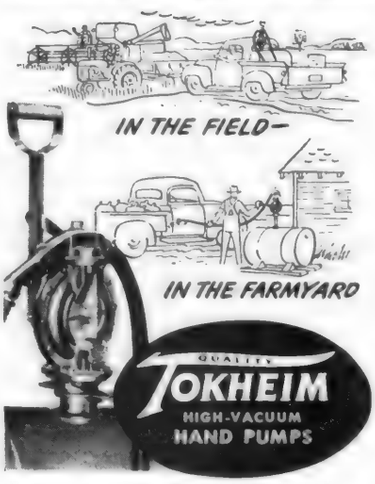
Send me FREE Home-Way Pictures and Prices.

Name_____

Address_____

City_____ State_____

BETTER FUEL HANDLING



Here's the most useful pump on the farm. Operates on skid tanks or drums for rapid servicing of cars, trucks, tractors and other working equipment, on the job—in farmyard or distant fields. Handles any petroleum liquid. Pumps up to 20 gallons a minute. Continuous delivery. High suction. Hose or spout outlets. See your oil company or your Tokheim representative today!

General Products Division
TOKHEIM CORPORATION
1626 Wabash Ave. Fort Wayne 1, Ind.
Factory Branch: 475 Ninth St., San Francisco 3, Calif.
In Canada: Tokheim-Reeder, 205 Yonge Street, Toronto

THE DAIRY BARN

(*Continued from page* 24)

Marshall and Yeager have even gone into such factors as can stickage and spillage losses in trying to figure on savings attributable to the bulk tank. This loss from milk sticking to the cans and from spilling seems to run around ½ to 2 pounds per 10 gallon can of milk. They make the further observation that the milk lost by stickage probably contains a higher than average per cent of butterfat.

In making this study they worked with 15 dairy farms with herds ranging in size from 16 to 214 cows, and average production per cow ranging from 4,500 to 9,000 pounds. Average herd size was 78. Most of the dairymen planned to increase their herds by about 17 percent after buying a bulk tank, though some of the larger operators indicated they planned a reduction in herd size.

Annual cost of ownership and operation of the bulk tanks averaged 13 cents per hundredweight of milk produced compared with an average of 7 cents per hundredweight when using cans and cooler. The study notes that "the higher cost for bulk tanks does not consider reduced loss of milk handling, possibly higher butterfat percentage, or the value of any reduced labor or physical effort that may be associated with bulk handling."

It would seem from the figures cited in the study that the biggest savings on bulk milk handling accrue to the milk plants. Savings for big receiving plants "range up to 40 cents per hundredweight of milk handled." Hauling costs per hundredweight are reduced by the bigger volume of milk handled per stop when pickups are shifted to an every-other-day basis. Much of the cost of storage and refrigeration is shifted to the farmers; receiving is faster at the plant; the need for Sunday

New
LOW COST
FEED
MILL
Grinds All Grains

Bowsher All-Purpose Burr Mill gives coarse to fine grind for cattle, hogs or chickens—without changing burrs. Grinds ear corn, shelled corn, oats and all small grains—up to 170 bu. an hour at 550 RPM—225 bu. an hour at 1,100 RPM. Produces uniform granular feed—no dust.

Easy Grinding Adjustment

Handwheel gives instant adjustment for any size grind. Hopper is only 30" off ground on rubber tires. PTO mill has 8 ft. elevator—Spout turns in circle. Fully guaranteed by Bowsher Company—specializing in precision built burr mills since 1882. Send card today for complete facts to The N. P. Bowsher Co., 915-K Webster St., South Bend, Indiana.

FREE SAMPLES OF UNIFORM GRIND & ILLUSTRATED LITERATURE

America's Finest Cultivator — at anywhere near its small price!

Hummin'bird
ROTO-HOE

Here's the tool you've wanted. It works so easily that the wife and children will love to use it—and will keep an even better garden than usual. Tills up to 7" deep, cultivates quickly and easily and doesn't miss a weed between narrow rows. Entirely new principle of horizontally-rotating tines does a superior job—you just guide it. Thoroughly tested in 3 years of limited production, now in high volume production to meet the tremendous demand. At this low, low price for such a high-quality power tool, all America will instantly recognize the value—and practically anyone with a lawn or garden can afford it. Full 2½ h.p., self-propelled, cultivator works equally well on front or back.

$109.50 complete

INSTANTLY INTERCHANGEABLE ATTACHMENTS

In just seconds, the new PRESS-MATIC method of attaching lets you take off the cultivator and substitute either the beautiful 22" self-propelled twin spindle rotary mower ($44.50), or the Safe-Speed Edger ($27.50) attachments. They're integrally designed unequaled at many dollars more.

WRITE TODAY for free color folder telling full details about the NEW Hummin'bird and the other three ROTO-HOE lines. Write to **ROTO-HOE, Dept. F-7, NEWBURY, OHIO.** Do it now!

FAST IDENTITY
with INSEMIKIT
E-Z REDD TAGS

Identify bloodlines, breeding, feeding, or dam-daughter comparisons with 1¼" high numerals on 3½" cow and 2½" calf size tags. Colorful, contrasting numbers, wear-resistant plastic. Available with neck chain and fastener. Write for samples and prices.

FREE 1958 CATALOG

From the world's largest source of Artificial Breeding Equipment. Breeding and Show Ring Equipment, Extension Worker and Vo. Ag. Supplies. Write Dept. 21.

INSEMIKIT COMPANY, INC.
Barabee, Wisconsin

PINE and SPRUCE
SEEDLINGS

Best Varieties
For Christmas Trees

Write for free catalog

VAN'S PINES NURSERY
West Olive, Michigan

COUGHS DUE TO COLDS

among horses, mules, cattle, sheep and dogs call for treatment with SPOHN'S COMPOUND. A stimulating expectorant. Acts on throat and bronchial tubes to hasten relief. Used by world-famous horsemen for 55 years. At drug stores, or direct, postage paid, $1 & $2. SPOHN MEDICAL CO., BOX 14, GOSHEN, IND.

SPOHN'S COMPOUND
FOR COUGHS DUE TO COLDS

receiving operation at the plant is reduced, and the driver's job is much easier with can lifting eliminated.

An appendix contains some interesting points on calculating annual ownership and operation costs.

Copies of this publication can be obtained by writing to the Agricultural Experiment Station of the Alabama Polytechnic Institute, Auburn, Alabama. Ask for Circular No. 120.

FARM BOOKS

(*Continued from page* 32)

The first volume is the story of Captain Richard King and the way he put together this fabulous ranch. Working with highly colorful and dramatic materials, Lea has come through with a book that will take its place among the top biographies of frontiersmen and cattlemen. Eleven-year-old Richard King stowed away on a coastal vessel out of New York in 1835. He got into steamboating and came to the Rio Grande 12 years later. After a successful career on the river with his partner, Mifflin Kennedy, he bought his first parcel of range land along the waters of Santa Gertrudis Creek in Nuces County, Texas, in 1853. These original 15,500 acres cost him $300.

It was fitting that the Captain met the man who was later to fill his shoes as manager of the ranch, during the course of a law suit involving a piece of land. Robert Justus Kleberg represented the opposition and soundly whipped King and Mifflin Kennedy. The day after the conclusion of the trial, at two o'clock in the morning, King went to young Kleberg's hotel room and offered him a $5,000 a year retainer which was accepted on the spot. A few years later Kleberg married Alice Gertrudis King.

The second volume carries the history of the ranch from the time of Captain King's death in 1885 down to the present. Romance gradually gives way to science. Brahman cattle were introduced to the South Texas ranges. Neighbor Ed Lasater was saying "Brahman cattle raise the value of South Texas rangeland two dollars an acre"; and Tom East defended their

Agricultural
Rainer
gives
8,928
LOW COST HOURS

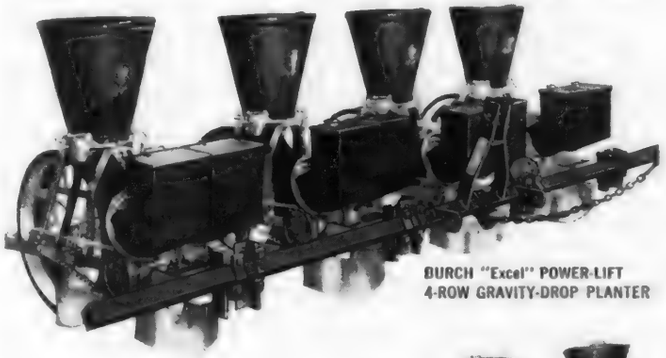
Eight quarter mile lines equipped with Buckner 860P Rainers operated 8,928 hours per sprinkler under sandy field conditions for only $268.08.

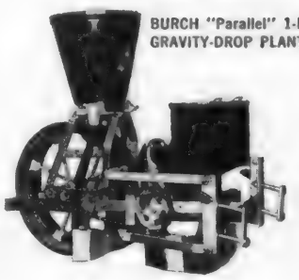
For better quality, for bonus yields, buy Buckner, the long-lasting, low-maintenance sprinkler. Buckner's exclusive GDG bearing keeps out blown dirt and sand, cuts down wear from water sand and is engineered for positive rotation.

BUCKNER
MANUFACTURING CO., INC.
P. O. BOX 232 • FRESNO 8, CALIFORNIA

PROFIT FROM 91 PROGRESSIVE YEARS OF SPECIALIZED EXPERIENCE . . .

invest in the advanced
BURCH "Excel"
GRAVITY-DROP POWER-LIFT
PLANTER
that obsoletes all other types!


BURCH "Excel" POWER-LIFT 4-ROW GRAVITY-DROP PLANTER


BURCH "Parallel" 1-ROW GRAVITY-DROP PLANTER UNIT

BURCH "Excel" POWER-LIFT 2-ROW GRAVITY-DROP PLANTER with attachments

PLANTS UNEVEN SIZES OF SEED UNIFORMLY!
uses only 2 corn plates for all flats or rounds!

AMERICA'S MOST COMPLETE LINE OF "BEST IMPLEMENTS IN EARTH"
for all tractors with 3-point hydraulic-lift system
- "Gravity-Drop" and Edge-Drop Planters
- Flexi-Packers
- Disc Harrows (Regular, Medium, and Heavy Duty)
- Ridgers
- Spike Harrows (Regular and Heavy Duty)
- Middlebusters
- Surface Cultivators (2-Row to 8-Row)
- Sub-Soilers
- Cultivators (1-Row and 2-Row)

First and *only* planter that plants all seed evenly and accurately at tractor speed, however uneven the sizes! Seed is never "boxed in" on all sides, because it is elevated onto a shelf and not into a cell where it must fit . . . an exclusive BURCH advancement endorsed by planting authorities everywhere as the first major improvement in years of corn planter history. BURCH "Gravity-Drop" Planter available in single- or multiple-row units — each unit individually driven and flexible. BURCH offers more choice of planter types and sizes than any other make — AND more farmers use them than any other make! Mail coupon now for your Implement Buying Guide and name of your nearest BURCH "True Blue" Dealer.

BURCH PLOW WORKS, INC. Dept. Q-28, Evansville, Ind.
Send me free "Guide to Greater Implement Values":

NAME_____

ADDRESS_____

Gain A Year—PLANT NOW

STERN'S "PLUM SIZE" STRAWBERRIES

Actually as big as a plum!

25 plants $2.00 POSTPAID

25 for $2.00 250 for $10.00
50 for 3.25 500 for 18.00
100 for 5.00 1000 for 30.00

ONLY 5¢ A PLANT IN LOTS OF 100

Each plant yields 6 pints a year!

Thousands of Giant Berries
Most amazing new strawberry! NOW READY!—Stern's miracle "EMPIRE"! Enormous producers—each plant averaged 6 pints a year. They resist drought—actually thrive in hot dry weather. Magnificent flavor! Big, firm, sweet, extra juicy and red!

Our Finest Grade Plants — Official! Largest No. 1 size — the best and biggest grade. Strong well developed crowns and roots withstand severe winter conditions.

Plant Now For Crops This Coming Spring! Last Chance! Mail Coupon! Order Now FOR IMMEDIATE DELIVERY!
If you plant these now, you'll have berries in Spring 1959

Easy to Grow! Winter-Hardy! Guaranteed! Money-Back Anytime
Complete satisfaction unconditionally guaranteed! If disappointed in any way, keep plants without charge!

Stern's Nurseries Dept. F-150, Geneva, N.Y.

STERN'S NURSERIES, Dept. F-150, Geneva, N.Y.
Send my "PLUM-SIZE" strawberry plants. If not delighted, you will return my money—I'll keep plants without charge. (Send check or money order)

☐ 25 for $2.00
☐ 50 for $3.25
☐ 100 for $5.00
☐ 250 for $10.00
☐ 500 for $18.00
☐ 1000 for $30.00

Name_____
Address_____
City_____ State_____
Postpaid

® Trademark

CONTROL STOCK PESTS

The Safe, Easy, Automatic Way

with Sandhills AUTOMATIC CATTLE OILERS

CATTLE TREAT THEMSELVES

CHOICE OF "Rope-Wick" ALL STEEL RUBBING ELEMENT

The "Low-Cost" Automatic way to kill Grubs, (wolves, warbles), Mange Mites, Lice, Ticks and Flies. Just fill the tank and forget it. The 5-gal. oil supply lasts for weeks. Insecticides are rubbed deep down into hair and hide automatically as cattle treat themselves. Two Models Available.

Automatic "All Steel" Oiler with cable washer rubbing element—Recommended for feeder cattle and dry lot use. Can't wear out.

Automatic "Rope-Wick" Oiler with giant size Marine Rope rubbing element—Recommended for dairy use—cattle on pasture. The low-cost way to fly control.

Blast Bugs and increase your profits. Actual tests indicate treated cattle gain up to 8 times more than those untreated. . . . Sandhills Oilers get results you want at amazingly low costs. Write for full information and prices NOW! Dealer inquiries invited.

Oiler Prices start at $23.95 Prepaid when purchased with insecticide.

MIXES WITH OR WATER

Recommended Insecticide Concentrate.
Nothing gets results like NESSKILL ROTOLEX . . . Contains Hexaneal — Specially formulated for livestock use. Safe for both dairy and beef cattle. Mixes 1 to 20 with #2 fuel oil for use in all types of cattle oilers, or can be mixed 1 to 160 with water for spray application. Controls all 4 fall and winter stock pests! Cattle Grubs, Lice, Ticks, Mange Mites . .

Get the full story on stock pest control by writing today!

Automatic EQUIPMENT MFG. CO. Box 185 Pender, Nebraska

wildness by declaring "I'd a lot rather say 'Yonder they go!' than 'There they lay.' "

Then came the development of the Santa Gerturdis breed, the upgrading of the King Ranch Quarterhorses, a new grass program, a water program, oil development, and new approaches to the fight against the brush. All of this is described in the body of the book and documented in voluminous notes.

A distinctive typography and maps and drawings by the author give these two volumes real eye appeal. They hold many a stimulating idea and a lot of just plain good reading for anyone with an interest in land, grass, livestock and the color and excitement of the old west.

POULTRY YARD

(*Continued from page* 26)

at the time—Dr. Nevin S. Scrimshaw of the Institute of Nutrition of Central America. The logical answer to such a statement was a question—could the chick diet be modified for the children? The two scientists went to work on this problem and converted a well-balanced chick starter, known as Mixture Eight, into a dry, crumbly meal that can be mixed with water and eaten as porridge or made into a tortilla-like cake. Fed to the undernourished kids by Dr. Moises Behar, a Guatemalan pediatrician, the results were spectacular. Within three weeks the sores had cleared up and the swollen bellies were back to normal; within two months the children were bright-eyed and healthy —healthier than ever before in their lives. The ingredients for Mixture Eight are both cheap and plentiful. Guatemalan mills are now under contract to begin producing the chick feed for children.

Animal Breeders Throughout the Nation Depend on

CARROT OIL

The richest known natural source of Vitamin E —for healthier livestock, better meat, milk and egg production, surer pregnancies, more vigorous young, faster growth—in short, for safer profits.

Carrot Oil is available in various forms, one or more of which is adapted to your needs. Use Quintrex ADE Oil with animals that fail to conceive—results guaranteed when due to Vitamin E deficiency. Send $1.80 for 4-oz. bottle postpaid. Breeders depend on it year after year.

Ask for 36-page booklet on "Carrot Oil" and folder entitled "Carrot Oil in the Feeding of Ruminants."

Get our prices on WHEAT GERM OIL

NUTRITIONAL RESEARCH ASSOCIATES, INC.
Dept. FA South Whitley, Indiana

ADVERTISING INDEX • SPRING—1958

Your Guide to Quality Merchandise and Service

Aermotor Co. 92
Agricultural Labs. 102
Agri-Tech, Inc. 157
Albers Milling Co. 151
Allied Mills, Inc. 9
American Bee Journal 116
American Cyanamid Company 152, 153
American Farm Equipment Co. 114
American Guernsey Cattle 163
American Hampshire Sheep Assn. 136
American Shorthorn Breeders' Assn. 131
American Society of Farm Mgrs. 144
American Zinc Institute 130
Anchor Serum Co. of Indiana 140
Ariens Company 88
Armco Drainage & Metal Products 37
Arnold Dryer 116
The Aro Equipment Corp. 154
Auto-Hoe 140
Automatic Equip. Mfg. Co. 166

Babson Bros. Co. Back Cover
John Bean Div. Food Machinery & Chemical Corp. (Irrigation) 100
Behlen Mfg. Co. 26
C. S. Bell Co. 138
Belsaw Machinery Co. 140
C. L. Berger & Sons Inc. 92
Black, Sivalls & Bryson 138
Bostrom-Brady Mfg. Co. 101
N. P. Bowsher Co., Inc. 164
Brady Mfg. Co. 119
Bridgeport Implement Works 146
Brillion Iron Works, Inc. 150
Buckner Mfg. Co., Inc. 165
Burch Plow Works 165
Butler Mfg. Co. 117, 157

Campbell Farm Dryer Co. 112
Campbell Hausfeld Co. 120
Canton Containers, Inc. 121
Caswell Mfg. Co. 160
Caterpillar Tractor 13
Century Engineering Co. 90
Champion Corporation 98
Cherry-Burrell Corp. 129
Chore-Boy Div. Farmer Feeder Co., Inc. 91
Chrysler Corp. Industrial Engines Div. 99
Cizek Mfg. Co. 126
Clay Equipment Corp. 113, 128
Clayton & Lambert Co. 120
Cobey Corp. 127
Consolidated Products 31
Construction Machinery Co. 102
Continental Motors Corp. 155
Craft Mfg. Co. 121
Crescent Plastics, Inc. 96
Ray Cunningham & Sons, Inc. 38

Dairy Equipment Co. 161
Danuser Machine Co. 104, 124
H. C. Davis & Sons 156
Deere & Co. 6
DeKalb Agricultural Assn. 22
Deming Co. 95
Doane Agricultural Service, Inc. 162
Dodge Div. Chrysler Corp. 35
Duplex Mill & Mfg. Co. 129
E. I. DuPont DeNemours & Co., Inc. 136
Durethene Div. Koppers Corp. 118

Eaton Mfg. Co. (Eaton Axle) 8
Electric Auto-Lite (Spark Plugs) 135
Eshleman Tractors 143
Eversman Mfg. Co. 104
Ewing Foundry 113
Ezee Flow Corp. 145

Fairbanks-Morse Co. 98
Farm Book Ad. 150
Farmhand Co. 88, 131
Farm & Ranch Machinery Reports U.S. Pub. Co. 168
Farnam Co. 114
Ferndale Farm 140
Firestone Tire & Rubber Corp. 27
Fitchburg Eng. Corp. 163
The Flinchbaugh Co. 102
Fort Dodge Labs., Inc. 28
Fuerst Bros. & Co., Ltd. 118

GBH-Way Homes, Inc. 164
Garden State Swimming Pool & Supply Co. 139
Gehl Bros. Mfg. Co. 116, 146, 147
The B. F. Goodrich Co. 10, 11
The Goodyear Tire & Rubber Co. Second Cover
Gorman-Rupp Co. 97
Gravely Motor Plow 149

Habco Mfg. Co. 115
Hahn, Inc. 89
Hale Fire Pump Co. 101
Hanson Equipment Co. 86
Harvey E. Hanson Co. 139
Hartzell Propeller Fan Co. 109
Heil Co. 110
Helix Corp. 161
Hoffco, Inc. 147
Holstein-Friesian Assn. 25
Honnegers' & Co., Inc. 155
Howard Rotovator Co. 124

Hypro Engineering, Inc. 90
Inland Steel Products 130
Insemikit Co., Inc. 164
International Harvester Co., Tractors 1
International Harvester Co. (Construction Equip.) 23, 94

Jacuzzi Bros., Inc. 115
James Mfg. Co. 36
Johnston Pump Co. 105

Kalo Inoculant Co. 142
Kools Bros 118
Koppers Co. Wood Preserving Div. 119

Lakeshore Mfg. Co. 109
Lantz Mfg. Co., Inc. 88, 116, 120, 122
Larson Machine Co. 92
Lennox Industries, Inc. 110
Lilliston Implement Co. 142
Louden Machinery Co. 114
Lowrance Quail Farmm 137
Lundell Mfg. Co. 123

M & W Tractor Products Co. 159
Martin Mayrath Co., Inc. 126
Martin Steel Corp. Third Cover
Marvin Landplane Co. 95
Massey-Harris, Inc. Industrial Div. 108
Massey-Harris-Ferguson, Inc. 16, 17, 18, 19
Mathews Co. 117
McCulloch Motors Corp. 144
McDowell Co. 93
The Meyer Mfg. Co. 108, 131, 156
Monsanto Chemical 87
Morton Salt Co. 34
Musser Forest, Inc. 107, 110, 132, 133

National Agricultural Supply Co. 142
National Band & Tag Co. 140
National Rainbird Eng. & Sales 107
National Tube Div. U.S. Steel Co. 24
H. W. Naylor Co. 124
New Holland Machine Co. 20, 21
New Idea Div. Avco Mfg. Corp. 3
Nitrogen Div. Allied Chemical & Dye Co. 134
Northrup-King & Co. 12
Nutritional Reesarch Assoc. 166
Nut Tree Nurseries 140

Olentangy Farms 156
Oliver Corporation 4, 5
Oswald Mfg. Co. 127

Papec Machine Co. 122
Pax Steel Co. 140
Peerless Pump Div. Food Machinery & Chemical Corp. 106
Perfect Circle Corp. 14
Pfister Associated Growers 143
Charles Pfizer Co., Inc. 15
Pioneer Gen-E-Motor Corp. 162
Pioneer Hi-Bred Corn Co. 103
Piper Aircraft Corp. 33
Potash Rock Co. of America 124

Reading Testing Labs., Inc. 104
Red Poll Cattle Club of America 145
Reynolds Metals Paint Div. 149
Reynolds Metals Irrigation Div. 148
Richardson Mfg. Co. 140
The Ridge Tool Co. 7
Rilco Laminated Products Co. 167
A. I. Root Co. 131
Roper Mfg. Co. 104
Ross Equipment Co. 109
Roto-Hoe & Sprayer Co. 164

Scott's Farm Seed Co. 156
Servis Equipment Co. 132
The Sherwin Williams Co. 110
Shox-Stok, Inc. 93
Sioux Steel Co. 158
Skinner Irrigation Co. 101
The Snow Co. 141
Spohn Medical Co. 164
Spraying Systems Co. 90
E. R. Squibb & Sons 72
Standard Brands, Inc. 112
Stern's Nurseries 145, 166
Stone Mfg. Co. 146
Sudbury Laboratories 29
Sunflower Industries, Inc. 160
Sunflower Mfg. Co. 124

Tokheim Oil Tank & Pump Co. 164
Turkey Ridge Farm 30

Van Pines Nursery 164
Visking Co. 125
Vulcan Hart Mfg. Co. 140

R. M. Wade & Co. 96
Walsh Mfg. Co. 140
Western Land Roller Co. 144
Wheel Horse Products Co. 32
Wilson Refrigeration, Inc. 39
Wisconsin Motor Corp. 160
Wonder Building 133
Wyeth, Inc. 111

Yardley Plastics Co. 137

Zero Sales Corp. 139

Farm Quarterly, 22 East 12th St., Cincinnati 10, Ohio

Advertising Offices: EASTERN OFFICE, Harold C. Weltner, 38 W. 53rd St., New York 19, N. Y.; MIDWEST OFFICE—Michigan, Charles W. Anderson, Ringwood, Ill.; WESTERN OFFICE, Damon Blossom, Belden Farm, Belton, Mo.; WEST COAST OFFICE, Ed Kerr, 104 South Carondelet St., Los Angeles 57, Calif.; ADVERTISING MANAGER, Harry Dunnohew, 22 East 12th St., Cincinnati, Ohio. F. & W. Publishing Co., Aron Mathieu, Vice President. Member A. B. C.

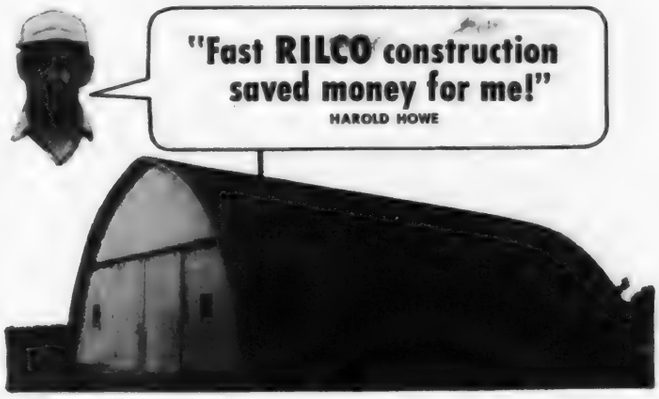
Post Free Construction Suits Needs Perfectly!

One end of this 50′ x 72′ Type 55 Rilco utility building, owned by C. I. Roosa & Sons, is used as a machinery and general utility shed. The other end of the building has been left open for use as a dairy cattle shelter.

Says Leon Roosa, "We wanted a machine shed with plenty of work space and room to move machinery in and out easily, plus a sturdy, wind-resistant cattle shelter. We got both in one building at reasonable cost by building Rilco."

Strong, clear-span Rilco utility buildings are easily adaptable to a wide variety of uses, and interior arrangements can be changed to meet changing needs.

Fast, easy Rilco construction keeps total erected cost low. Rilco rafters are cut to length, delivered with new, patented base anchors that simplify and speed building erection. Each rafter is made of selected kiln-dried West Coast Douglas Fir, permanently bonded with waterproof glue. Whatever type of farm building you need . . . Rilco has it!



In 1949, Mr. Howe constructed a Rilco barn. More recently, he built the roomy 40′ x 60′ Type 50 Rilco utility building shown above which he uses as a machine shed.

"Labor costs on both my Rilco buildings were very low," he says. "And they're strong, well-constructed buildings."

The Rilco building you choose can be erected with the same ease and speed that saved Mr. Howe construction dollars. Get all the facts about Rilco . . . mail the coupon below.

RILCO / GLUED LAMINATED RAFTERS

RILCO LAMINATED PRODUCTS, INC.
W-808 First National Bank Building, St. Paul 1, Minnesota

Please send information on the following farm buildings:

☐ One and Two-Story Barns ☐ Crop Storage ☐ Machine Sheds
☐ Hog and Poultry Houses ☐ If student, check for additional material.

*Name*_____

*Address*_____

*Town*_____ *State*_____

Get the most for your money when you buy important and expensive farm machinery...

Get advance information on new equipment developments, auction prices on used equipment and other valuable data.

from Confidential, Authentic, Up-To-The-Minute Facts in

Farm & Ranch Machinery Reports

FARM AND RANCH MACHINERY REPORTS pull no punches in bringing you the plain unvarnished truth—because it is completely independent, without affiliation or subsidy from any manufacturer.

All equipment tested is purchased from dealers just as it comes from the factory—just as you would buy it from your dealer.

Unbiased tests designed to get the facts are run in the field by our own experienced staff.

Here is an example of the information covered in the REPORTS:

Two makes of 3-plow tractors sold within $100 of each other. Tests published in the REPORTS showed that one tractor delivered 33⅓% more horsepower at the same price.

Information like this can help you save big money in making decisions on the purchase of important and expensive farm machinery. Your savings on a single decision can repay you the cost of the REPORTS many times over.

8 Pages of Valuable Information like this—every month.

- AUCTION PRICES of used equipment.
- COMPARATIVE tractor reports.
- HORSEPOWER RATINGS of all tractors annually.
- Comparative FIELD TESTS of combines, balers, mowers, corn pickers and driers.
- SPECIFICATIONS and prices of new farm equipment.
- EXPERIMENTAL farm machine reports.
- PLANTING EQUIPMENT and fertilizer replacement tests.
- WHERE TO BUY unusual types of farm equipment.

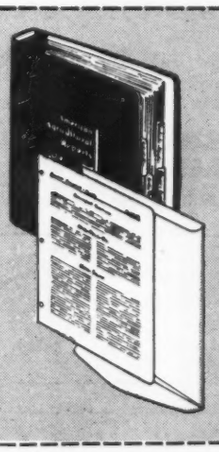
PLUS

A 4-Page monthly farm market news letter—at no additional cost!

With your subscription to FARM & RANCH MACHINERY REPORTS you receive every month *The Agricultural Situation* containing:

- Quarterly and annual price trends on all commodities.
- Special charts showing important monthly farm developments.
- Summaries of the month's developments in major commodities.

ORDER NOW—1 Year $6.00 • 2 Years $11.00



FARM & RANCH MACHINERY REPORTS
1841 N. Meridian St., Indianapolis 2, Indiana

Yes, send me FARM & RANCH MACHINERY REPORTS. I enclose

- ☐ $ 6 for 1 year (12 issues)
- ☐ $11 for 2 years (24 issues)

NAME.....

ADDRESS.....

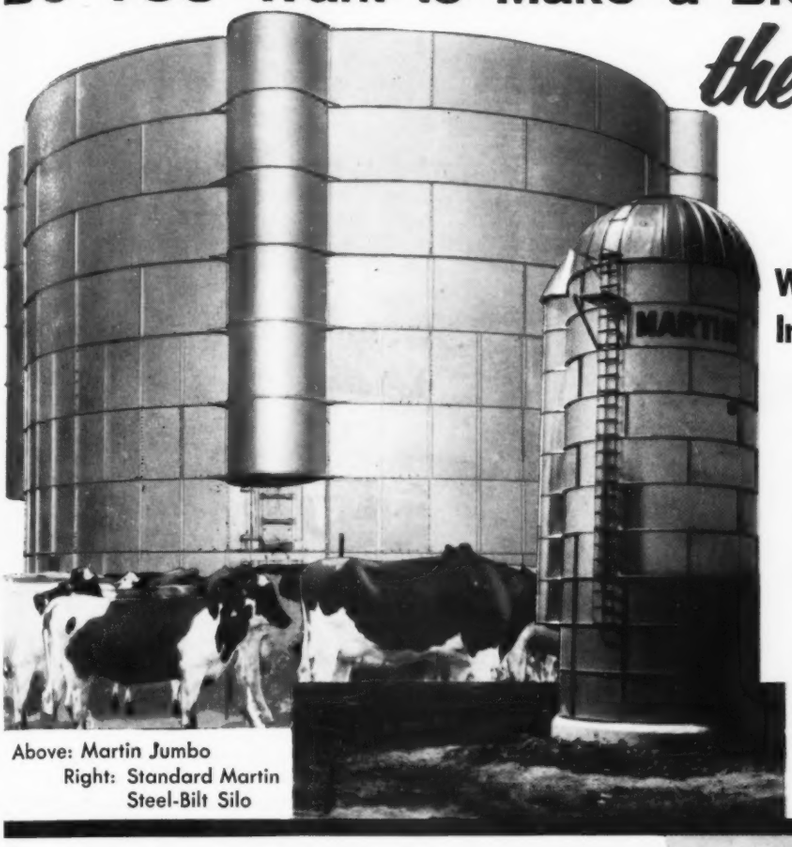
CITY.....STATE.....

Also send me FREE Report Binder like the one shown here.

Guarantee

If after receiving Farm & Ranch Machinery Reports and Free Binder, you are not entirely satisfied, your money will be refunded and you may keep the free binder for your trouble.

Do YOU Want to Make a BIGGER PROFIT ?



Above: Martin Jumbo
Right: Standard Martin Steel-Bilt Silo

the MARTIN *System*

Will Cut Your Labor Costs in Half— Increase the Value of Your Crops 25%

The key to a profitable beef or dairy feeding program is the use of a heavier ration of good quality silage. You can get more totally digestable nutrient from an acre—and slash labor costs in both handling and feeding to put more cash in your pocket. MARTIN Jumbo user Lawrence Begg, of Columbus Grove, Ohio, says that 15 minutes pitching morning and evening puts around-the-clock, free choice silage before 60 Holsteins. "With our MARTIN Jumbo we've solved the problem of saving time and work in feeding silage," says his herdsman, Lyle Graham. Regular or Jumbo, MARTIN Steel-Bilt Silos give proper fermentation for better quality, succulent, palatable silage.

The MARTIN "*Push Button*" System Dries ALL Grains Safely for Less

Now every farm can have a complete grain drying and storage system for far less than the cost of a cumbersome batch dryer and bins. The new MARTIN Harvest Hoarder Bin equipped with perforated floor, fan and automatically-controlled supplemental heat unit does the entire operation without rehandling of grain. When you need heat—the heater comes on automatically . . . when you don't need heat—you're not wasting fuel. Doesn't require constant attention.

In addition to the buildings pictured here, MARTIN builds many other farm buildings. Write or phone about any special building problems you may have.

MARTIN Rigid Frame Buildings—
Low Cost—Permanent—Pole-Free Interiors

Your best building buy today is this good-looking, fireproof, comfortable structure that lets you use every foot of space you pay for. The average MARTIN Rigid Frame Building costs less than a new car!

Mail Coupon For More Information

Please send free literature on the following:

- ☐ Jumbo Silo ☐ Silos
- ☐ Harvest Hoarder Bins
- ☐ Rigid Frame Buildings
- ☐ Corn Cribs
- ☐ Bulk Feed Tanks
- ☐ Haymakers

NAME .....

ADDRESS .....

CITY & STATE .....

613

M A R T I N
Steel Products Corporation
517 Longview Ave.—Mansfield, Ohio

A Looking Glass Finish Outside . . . and . . . INSIDE!

This new Surge Bucket won't wash itself, but it does make it mighty easy for you to see that it is clean because the inside is looking-glass bright. It is so slick and smooth and clean and bright that it is hard for milkstone to get a toehold.

Many experienced Surge Users report that this 1958 Model will milk just a little faster than the very speedy 1948 Model . . . and it does an especially good job on uneven-uddered cows.

Copyright 1958, Babson Bros. Co.

1958 Bucket Milker Unit . . .

$5 DOWN*

and up to 24 months to pay.

**Right is reserved to withdraw this proposition at any time.*

SURGE **BABSON BROS. CO.** **2843 W. 19th St., Chicago 23, Ill.**

ATLANTA • DALLAS • KANSAS CITY • MINNEAPOLIS • SACRAMENTO • SEATTLE • SYRACUSE • TORONTO